



**National Conference On**  
**"Innovations in Novel Drug Delivery Systems**  
**and Clinical Research"**

**8<sup>th</sup> & 9<sup>th</sup> January 2020**

Organized by



**P.RAMI REDDY MEMORIAL COLLEGE OF PHARMACY,**  
**KADAPA, ANDHRA PRADESH.**

## **ABOUT COLLEGE**

P. Rami Reddy Memorial College of Pharmacy (PRRMCP) was established in the year 1997, sponsored by Sree Saraswathi Educational Society, Kadapa. Our college is one of the premier institutes in pharmaceutical education and research in the country. The college has developed excellent facilities and resources such as spacious classrooms, seminar hall, well equipped laboratories, well-stocked library and vibrant infrastructure. Friendly management and supportive faculty are the sources of PRRMCP's success. The course programme and campus life aims to extract hidden talents in student community both in academics and extracurricular activities.

Faculties are very caring to every student, which is the basic ingredient to a professional education. The pharmacist of the 21<sup>st</sup> century has significant responsibility for managing drug therapy outcomes and our Doctor of Pharmacy program prepares future practitioners to meet these challenges. Our college graduates are placed in various pharmaceutical industries at India and abroad.

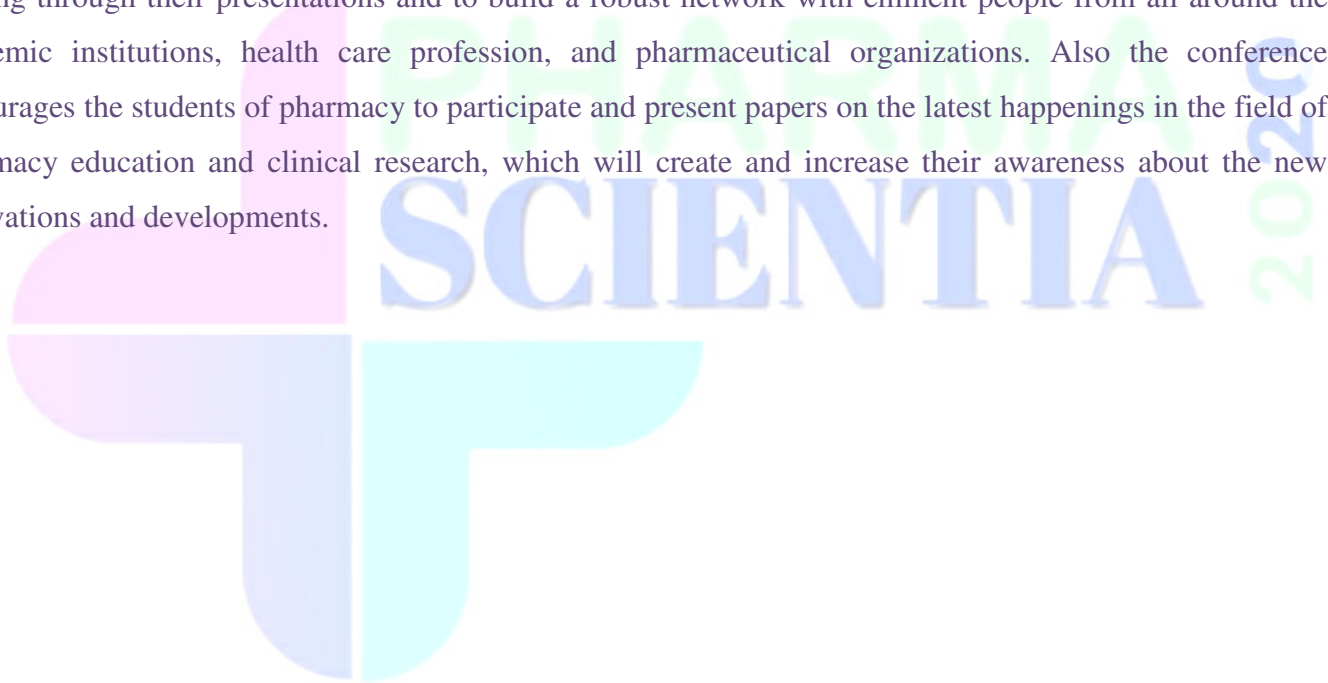


## **ABOUT THE CONFERENCE**

Pharma Scientia 2020 sincerely welcomes enthusiastic and interested participants all over India to take part in the “National Conference on Innovations in Novel drug delivery system and Clinical research”.

The main aim of the conference is to create awareness about latest innovations in the field of Novel drug delivery systems and Clinical research. The two-day conference would offer a common platform for interaction with eminent academicians and health care professionals, who would deliver lectures in their relevant field of pharmaceutical research in this conference.

Pharma Scientia 2020 is the most suitable platform to explore one’s scientific knowledge by sharing through their presentations and to build a robust network with eminent people from all around the academic institutions, health care profession, and pharmaceutical organizations. Also the conference encourages the students of pharmacy to participate and present papers on the latest happenings in the field of pharmacy education and clinical research, which will create and increase their awareness about the new innovations and developments.



## **ABOUT THE DEPARTMENT OF PHARMACEUTICS**

### ***P RAMI REDDY MEMORIAL COLLEGE OF PHARMACY***

The Department of Pharmaceutics is committed to excellence in academics, research and development through productivity and success of faculty and students.

The Department of Pharmaceutics provides curricular content in the areas of Pharmaceutics, Physical Pharmacy, Bio Pharmaceutics, Industrial Pharmacy, Pharmaceutical Compounding and Dosage form design in the Bachelor of Pharmacy and Doctor of Pharmacy programmes.

The Department's graduate education program prepares masters and Ph.D graduates with scientific competence in pre formulation, formulation development, pharmaceutical processing / manufacturing and targeted drug delivery system.

The Department offers M. Pharm specialization in Pharmaceutics with an intake of 15 students, and equipped with 3 laboratories, machine room, modern facilities and competitive staff. Laboratories in the department are facilitated with modern machinery like probe sonicator, bath sonicator, brookfield viscometer, all-purpose equipment, punching machine, 8-basket dissolution apparatus etc.

A number of research and review articles are published every year in the reputed journals.

## **DEPARTMENT OF PHARMACY PRACTICE**

### ***P RAMI REDDY MEMORIAL COLLEGE OF PHARMACY***

The Department of Pharmacy Practice as an academic curriculum started in the year 1997 in India. The importance of this department was recognized by the Health Care Professionals with the introduction of 6 years Pharm. D course in the year 2008. Pharmacy practice is a rewarding career in today's expanding health care landscape. It is dedicated to enhance pharmacy education, research and practice for improved patient care and health. Pharmacy practice department specializes in clinical pharmacy services such as drug and poison information, patient counselling, adverse drug reaction monitoring and medication therapy management. Drug information centre (a division of pharmacy practice) provides prompt and detailed responses to pharmacotherapy related questions as required by healthcare professionals. The expanding roles of this department include the application of evidence based medicine towards patient safety, pharmaceutical care, clinical research in disease management and continuing pharmacy education programs. This department also have expertise in diverse areas such as Medication review, Patient safety programs, Clinical toxicology, Antibiotic stewardship etc.

Department of pharmacy practice improves health care through innovation, collaboration and advocacy to achieve excellent outcomes. It helps to pioneer new roles for pharmacists in outpatient clinics, hospital units, mental health institutions, skilled care facilities, and community pharmacies by applying their knowledge of disease and drug therapy. It allows current professionals to acquire skills and knowledge to plan, perform and interpret pharmacometric analyses with the goal of influencing key drug development, regulatory and therapeutic decisions. Methodologically based research in pharmacokinetics, epidemiology, pharmacoconomics and drug policy are also vital components of pharmacy practice department's scholarly mission.

## *FROM THE DESK OF CHIEF PATRON...*



It is a matter of extreme happiness to welcome and receive you all here on the occasion of two day National Conference on “Innovations in Novel Drug Delivery Systems and Clinical Research” organized by P.Rami Reddy Memorial College Of Pharmacy, Kadapa sponsored by Sri Saraswathi Educational Society on 8<sup>th</sup> and 9<sup>th</sup> January, 2020.

A national gathering like this arranged for the purpose of sharing knowledge in the field of pharmaceutical care is indeed a great occasion to commemorate.

It is heartening to know that the two day national seminar is being organized with the objective to strengthen the current national scenario of drug research and practice to promote safe and rationale use of medicines by offering a common platform to pharmaceutical scientist, researchers, industrialists and academicians. We are sure that this conference would facilitate rational exploration on the innovations in drug delivery systems and clinical research of pharmaceutical field.

I congratulate all those involved in this event and wish them all the success.

## *FROM THE PATRON'S DESK...*



It gives me an immense pleasure to welcome you all to the two-day National Conference on “Innovations in Novel Drug Delivery Systems and Clinical Research” at our college i.e., P. Rami Reddy Memorial College of Pharmacy, Kadapa sponsored by Sri Saraswathi Educational Society on 8<sup>th</sup> and 9<sup>th</sup> January, 2020.

P. Rami Reddy Memorial College of Pharmacy is always engaged in the academics and research activities to propagate and uplift the profession of pharmacy in the southern region of India.

The main objective of the conference is to focus on the present innovations and developments in the field of pharmaceutical sciences and their applicability in pharmaceutical technology and therapy which helps to inculcate not only sharing technical knowledge but also to express one's innovative ideas. Fruitful exchange of knowledge and ideas is the need of the hour to ensure progress in the field of pharmaceutical sciences.

We are sure that the conference would provide an ideal environment for promulgation of ideas between eminent scientists, academicians, and the participants.

We wish this conference a grand success.

## *FROM THE DESK OF CONVENOR...*



It is indeed a great honour and immense pleasure to organize a National Conference on “Innovations in Novel Drug Delivery Systems and Clinical Research” at P. Rami Reddy Memorial College of Pharmacy, Kadapa sponsored by Sri Saraswathi Educational Society on 8<sup>th</sup> and 9<sup>th</sup> January, 2020, and I extend a warm welcome to all the delegates and participants for the conference.

The conference intends to bring together academicians, research scholars, industrialists, and participants from different disciplines of pharmacy to discuss the concerns related to various innovations in clinical research and novel drug delivery systems.

I personally feel that pharmaceutical science is one of the important branches of medical sciences and has the capability to fulfil all the demands of the society in healthcare systems and this conference tends to be a unique forum for exchange of innovative ideas, novel expertise for novel advancements in this evergreen field. The events in the conference are targeted towards researchers, practitioners, professionals, educators and students to share their experience, innovative ideas, issues and recent trends and future directions in the field of pharmaceutical sciences and clinical research which will benefit all the participants.

The two day deliberations and interactions of the experts with the fresh minded young researchers and students will definitely blossom some fruitful results to the society, in particular to the pharma community.

Heartful gratitude is extended to the Chairperson and Secretary of SES for providing us with the opportunity to organize this event.

On behalf of the whole Pharma Scientia 2020 team, I would like to express my sincere thanks to the invited speakers, delegates and participants for the success of the conference. Last, I would like to thank the whole family of PRRMCP for their help in every aspect of the conference without whom it could not be possible to successfully complete this conference.



# ORGANISING COMMITTEE

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*P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY, KADAPA, A.P.*

**PHARMA  
SCIENTIA**

**2020**

-----Speakers Profile-----

**Dr. C. V. S. Subrahmanyam, M.Pharm, Ph.D**

Professor & Principal

Gokaraju Rangaraju College of Pharmacy,  
Bachupally, HYDERABAD – 500 050



Dr. C.V.S. Subramanyam completed his graduation and post graduation in Pharmacy from Andhra University, Vishakapatnam (1997-80). He joined as a lecturer in KLE's college of Pharmacy, Bengaluru and then as an assistant lecturer for 6 years in Birla Institute in 1986. Teaching and research eminence experience of Dr. C.V.S. Subramanyam includes 39 years in various grades like Associate Professor, Professor, Vice-Principal and Principal, guiding about 18 Ph.D's, 45 M.Pharm students and 25 B.Pharm projects. He received an award of Good Teacher (1995) chosen by the students at College of Pharmaceutical Sciences, Manipal through Secret Ballot and Ranbaxy Research Award for Pharmaceutical Sciences (1985) given to guide Prof R.C. Srivastava.

Dr. C.V.S. Subramanyam has published 40 research articles in high impact factor international and national journals and presented 20 in national conferences. He is a life member in IPA, APTI and Indian Pharmacy Graduates Association. He also extended his services as a Referee for review of research articles for Indian Journal of Pharmaceutical Sciences (1995 onwards); member, editorial board, Indian Journal of Pharmaceutical Education (1997 onwards).

Dr. C.V.S. Subramanyam has numerous affiliations as member in Academic Bodies and include: He was invited as a Resource person in several conferences and seminars and delivered 5 plenary lectures and 20 guest lectures. He is an eminent author for various textbooks, laboratory manuals of Physical Pharmacy, Physical Pharmaceutics, Pharmaceutical Engineering, Industrial Pharmacy, Pharmaceutical Production & Management, Pharmaceutical Regulatory Affairs and Computer-aided Drug Development.

**Prof. R.Nagaraju, M.Pharm, Ph.D**

Dean - Development  
Institute of Pharmaceutical Technology  
Sri Padmavati Mahila Visvavidyalayam (Women's University)  
Tirupati-517502, A.P.



Dr. R Nagaraju currently working as Head –Department of Pharmaceutics, Institute of Pharmaceutical Technology, Sri Padmavati Mahila Visvavidyalayam (Womens University), Tirupathi. R. Nagaraju obtained B.Pharm, M.Pharm and Ph.D from College of Pharmaceutical Science, Manipal. He joined in Visveswarapura Institute of Pharmaceutical Sciences, Bangalore on December 1986 and worked at various capacities such as Lecturer, Assistant Professor, Professor and Head of the Department.

Professor R. Nagaraju has 55 publications to his research credits in both National and International journals of high impact factor.

He has guided about 38 dissertations at PG level and 8 at PhD level and presently guiding 8 PhD scholars.

Life membership in professional bodies include: Indian pharmaceutical association (IPA), Association of Pharmaceutical Teachers of India (APTI).

Professor R. Nagaraju is Honorable Secretary, Associate of Pharmaceutical Teachers of India, A.P branch and acquired various research funds for his project which includes: DST-CURIE II phase project, rs.22.5 lakhs was sanctioned in the year 2017, UGC project- industry linkage rs. 2.2 lakhs was sanctioned in the year 2015 and AICTE –MODROBS project rs.10.5 lakhs was sanctioned in the year 2005. He received several awards like Best Teacher Award in 2017(in pharmacy) by GOVT. of A.P., Best Pharmacy Teacher by APTI., AP Scientist Awards -17 by (APCOST) Vijayawada, National Best Teachers Award -2017 by CVS Krishnamurthy Charities, Tirupathi., Scientific and Innovative Scientist Award - 2017 by Indian Pharmaceutical Association, Ananthapuramu., Distinguished Alum India Award of Manipal College of Pharmaceutical Science, The Achiever of the Year 2002 by AVDPA, Bangalore and 2 patents were granted In Dental implants .

He was nominated as EAMCET committee member for the year 2007 and 2014. He organized Refresher courses, seminars at university levels & contributed as chair person and member of the scientific committees of various conferences.

## **Dr. J. Suryakumar**

**CEO**

**SSIIE Technology Business Incubator**

**Padmavati Mahila Visvavidyalam**

**Tirupati, A.P, India.**



Dr.J. Suryakumar was awarded his doctorate in August 1992 from Kakatiya University, Warangal, Andhra Pradesh and did his post doctoral fellowship at University of Kentucky USA from January 1993 to Jan 1995. He was the general manager, research and development (Formulations) Biological E. limited, Hyderabad, India, during the years 1995 to 2001 and extended his responsibilities as Associate Director (Pharma Research) at Lupin limited, Pune and as Senior Director, IPDO, Dr. Reddy's laboratories, Hyderabad. He was the Senior Vice President, Orchid Pharma Ltd., till October 2019.

Dr. J. Suryakumar was honored with G.P Nair Award and received gold medals of the Indian Pharmaceutical Association and Kakatiya University. He published 15 research articles and gave 16 presentations at various conferences and seminars. He bagged 18 patents in his account.

Dr. J. Suryakumar is an eminent governing council member for PSG institutions Coimbatore, member of examination panel for Master's/Doctoral program of various universities and member of Indian pharmaceutical Association and American Association of Pharmaceutical Sciences.

## Dr. S. Sreeram

Professor & Head,  
Department of Pharmacy Practice,  
Sri Ramakrishna Institute of Paramedical sciences,  
Coimbatore, Tamil Nadu.



DR. S. SRIRAM has completed his Bachelor degree from the Institute of Pharmaceutical Technology, Annamalai University in the year 1990. After Bachelor degree he worked with *GLAXO INDIA LTD* at Delhi and Haryana for 2 years. Then he joined *CADILA* as Area Manager and was working at Mangalore for one year. During 1993-95, he did his Postgraduation with Pharmacology as specialization from JSS college of Pharmacy, Ooty. He secured *Gold medal in M.Pharmacy* and got the *best outgoing student award*. He has completed his doctoral programme in the field of Evaluation of Adverse drug reaction and drug interaction monitoring. In 1995, he joined College of Pharmacy, Sri Ramakrishna Institute of Paramedical sciences, Coimbatore. Presently he is heading the department of Pharmacy practice. He has *got more than 90 publications* in various National and International journals for his credit. He has received the “*BEST TEACHER AWARD*” from the Tamilnadu Dr.M.G.R University, Chennai received from the Governor of Tamilnadu, during November 2011. He is the Chief Editor of the Pharmacy Practice News Letter released from his institution. He is also the *advisory board member and Reviewer* for various Indian & International Journals. He also serves as Doctoral Committee member in various Universities. He has delivered lectures in various national and international conferences on various topics like Clinical Research, Pharmaceutical care, Medication errors, Clinical Competencies etc. He served as Inspector, Pharmacy Council of India and Board of studies member in various universities. He has received the award for “*Outstanding Pharmacy Faculty of the year 2017*” conferred by the IPA-Anathapura Branch. He is appointed to serve as *Secretary of the Bioethics Unit of the international Network of the UNESCO Chair in Bioethics* in proclamation of the establishment of Regional Nodal Centre for Pharmacy Bioethics Program at Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore. He is also nominated as *Associate Secretary, Central Executive Council, Indian Pharmaceutical Association- Education division* for the year 2018-2020. He is Life member in various associations like APTI, IHPA, IPA, IPGA, ISPOR etc.

**Dr. Rajesh Venkataraman, M.Pharm, Ph.D**

Head, Clinical Trials,

Adichunchanagiri Hospital & Research centre.



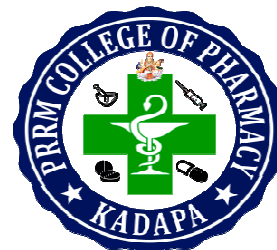
Dr. Rajesh Venkataraman is currently working as Head, Clinical trials, Adichunchunagiri Hospital Centre & Professor & Head, Department of Pharmacy Practice Sri Adichunchanagiri College of Pharmacy. He has Clinical Research experience of 4 yrs and Teaching experience of more than 10 years. Area of research interest lies in neutraceutical science and cognitive science has published more than 15 international journals with high impact factor.

He has secured 23,60,000 of research grant over a period of 3 years.

*Dr. Rajesh Venkataraman's key achievements include:*

- ✚ GCP certified under Ministry of Health, Malaysia
- ✚ International Licensor Basic Teaching.
- ✚ International Preceptorship licensor.
- ✚ Hospital Coordinator, Hospital Pulau Pinang, Malaysia, under Ministry Of Health, Malaysia.
- ✚ Worked as Project Manager for various clinical trials
- ✚ Worked in International Medical University, Malaysia for a period of 3 years
- ✚ Coordinated OSCE (Objective Structural Clinical Examination) for a period of one year
- ✚ Initiated Online Drug Information centre at AH & RC (First in India)
- ✚ Initiated Ambulatory Care centre at AH & RC (First in India)

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PSANL/003	Vishnu Sai Beere	Stabilityindicating RP-HPLC Method Development And Validation For The Estimation Of Briveracetam In Bulk And Its Dosage Form
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PSANL/005	M. Jyoshna	Stability indicating RP-HPLC method development and validation for the simultaneous estimation of glecaprevir & pibrentasvir In bulk and its dosage form
PSANL/006	K. Rushitha	Stability Indicating Rp-Hplc Method For The Simultaneous Estimation Of Lumacaftor And Ivacaftor In Bulk And Pharmaceutical Dosage Forms
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PSCHM/002	J.Sree Harsha	Synthesis, Characterization And Analgesic Activity Of Thiazolidinone Derivatives
PSCHM/003	C. Nilay Raju	Synthesis, Characterization And Anti-Bacterial Activity Of Nalidixic Acid Derivatives
PSCHM/004	B. Indira priyadarshini	Synthesis, Characterization And Biological Activity Of Schiff Base By 3-Aminoacetophenone
PSCHM/005	K. Ramyasree	Evaluation of The Physicochemical Properties of Some Edible Oils Available In Tirupathi
PSCOG/001	Guduru Rajeswari	Isolation and characterization of bioactive phyto compound from ethanolic whole plant extract of <i>pinus maritima</i>

## FORMULATION DEVELOPMENT AND EVALUATION OF NANOPRONIOSOMAL GEL MEDIATED TRANSDERMAL DELIVERY OF LOSARTAN POTASSIUM

Sabareesh M<sup>\*1</sup>, Yanadaiah JP<sup>2</sup>, Chandra Sekhar KB<sup>3</sup>

1. Research Scholar, JNTUA, Ananthapuramu
2. Professor, Dr. K.V.Subba Reddy Institute of Pharmacy, Kurnool
3. Professor, JNTUA, Ananthapuramu.

\*Corresponding Author E-mail address: [sabareesh85@gmail.com](mailto:sabareesh85@gmail.com)

### ABSTRACT

The transdermal nanoproniosomal gel of Losartan potassium was prepared for the treatment of hypertension that is capable of efficiently delivering the entrapped drug over extended periods of time and to provide better bioavailability. In the present study, nanoproniosomal gel of losartan potassium was formulated by Lecithin, Cholesterol, Non-ionic surfactants using Coacervation-phase separation method. The physical mixture of drug, lecithin and cholesterol were subjected to compatibility study using FTIR spectroscopy. The prepared nanoproniosomal gels were subjected to various evaluation parameters like, determination of pH and viscosity, vesicle size analysis, rate of spontaneity, encapsulation efficiency, zeta potential, *in vitro* skin permeation studies, skin irritation test and stability studies. The physical characterization of nanoproniosomal gels was found to be within the acceptable limits. The *in vitro* skin permeation studies showed the cumulative permeation of 71.1 %, 82.4 %, 54.6 %, 74.9 %, and 78.4 % through the skin in 24 hrs for the formulations NLPG1, NLPG2, NLPG5, NLPG8, and NLPG10 respectively. Among the all formulations, NLPG-2 was selected as best formulation because it showed better characteristics than other formulations in several aspects like entrapment efficiency, vesicle size, *in vitro* permeation studies, zeta potential, stability studies and other evaluation parameters. All the formulations showed zero order drug permeation with diffusion, non-fickian release as the possible mechanisms of drug release. The nanoproniosomal gels are suitable for once a day controlled release formulation.

**KEY WORDS:** Cholesterol, Lecithin, Losartan Potassium, Permeation studies, Proniosomal gel, Nonionic surfactants, Transdermal delivery.

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## COMBINATION EFFECT OF NATURAL AND SYNTHETIC POLYMERS IN EXTENDING THE RELEASE OF TOLPERISONE HCL FROM ITS EFFERVESCENT FLOATING TABLETS

M. Durga Srinivasa Rao\*<sup>1</sup>, K. Saravanakumar<sup>2</sup>, Kothapalli Bonnoth Chandrasekhar<sup>3</sup>

<sup>1</sup>Research Scholar, Dept. of Pharmaceutical Sciences, JNTUA, Anantapur- 515002, A.P., India.

<sup>2</sup>Professor and Head Dept. of Pharmaceutics, Sree Vidyanikethan College of Pharmacy, A. Rangampet, Sree Sainath Nagar, Tirupati-517 102, Chittoor (Dist.), A.P., India.

<sup>3</sup>Professor, Dept. of Chemistry and Director, Foreign Affairs & Alumni Matters, JNTUA, Anantapur

\*Corresponding Author E-mail address: [cool.vasu2050@gmail.com](mailto:cool.vasu2050@gmail.com)

### ABSTRACT

**Aim and objectives:** The aim of the current study is to study the effect of combination of synthetic and natural polymers in extending the release of Tolperisone HCl (TH) from its effervescent Floating Tablets (FT), which can extend its release up to 12 h. **Methods:** The drug- excipient compatibility studies of TH and the polymers used in the study were carried by FTIR studies. THFT were prepared by direct compression method. All batches were evaluated for pre-compression, post-compression and *in vitro* buoyancy studies. Accelerated stability studies were performed for the optimized formulation THFT11 as per ICH guidelines. **Results and discussion:** The drug-excipient compatibility studies reveal that TH and the polymers used for the study are compatible. Pre- and post-compression parameters were within the acceptable limits for all formulations. *In vitro* dissolution studies showed the formulation THFT11 (6.25% w/w sodium alginate and 18.75% w/w HPMC K100M) had extended the release of TH up to 12 h, with a floating lag time (FLT) of  $58 \pm 0.71$  sec, total floating time (TFT) and matrix integrity (MI) maintained up to 12 h, hence it is selected as an optimized one. *In vitro* drug release kinetics of optimized THFT11; suggests the drug release follows zero order profile ( $r^2=0.988$ ), drug release is predominantly by diffusion and the release mechanism is by super case-II transport. DSC and FT-IR studies of TH and accelerated stability samples of F11 further confirmed the drug is in the same state as pure TH. Accelerated stability studies of optimized THFT11; indicates it passes the test for stability as per ICH guidelines. **Conclusion:** Finally, it was concluded that an optimized effervescent THFT was formulated and evaluated with the combination of synthetic and natural polymers.

**KEY WORDS:** Tolperisone HCl (TH), floating tablets (FT), hydroxy propyl methyl cellulose (HPMC), sodium alginate (SA), guar gum (GG), *in vitro* buoyancy studies.

## **FORMULATION AND EVALUATION OF MEBENDAZOLE NANOSUSPENSION FOR ORAL DRUG DELIVERY**

G. Gokula Priyan<sup>\*1</sup>, C. Senthil Kumar<sup>1</sup>, R. Prema<sup>2</sup>, E. Sujitha<sup>1</sup> and M. Alagusundaram<sup>1</sup>

<sup>1</sup>Department of Pharmaceutics, Jagan's College of Pharmacy, Nellore - 524 346, Andhra Pradesh.

<sup>2</sup>Department of Pharmaceutics, Jagan's Institute of Pharmaceutical Sciences, Nellore -524 346, Andhra Pradesh.

\*Corresponding Author E-mail address: [nanosenthilkumar@gmail.com](mailto:nanosenthilkumar@gmail.com)

### **ABSTRACT**

Poor solubility of drug is a major obstacle to formulate pharmaceutical dosage form. To overcome such obstacles, nanotechnology places a remedy. Nanosized particles can increase the dissolution velocity and saturation solubility because of the vapour pressure effect. The bioavailability of marketed Mebendazole suspension is less due to its particle size (micron). In order to reach maximum bioavailability, reduction of particle size of Mebendazole can be done with the help of nanotechnology. Mebendazole is a poorly water-soluble drug and having anthelmintic activity effect. In marketed available Mebendazole suspension, bioavailability is only 50-60%. Hence, Mebendazole nanosuspension developed and evaluated various parameters and it contains excipients such as polymer, suspending agents, preservatives and surfactants. Drug excipients compatibility study reveals that the FTIR spectra of Mebendazole, Polyvinyl alcohol, Carboxy methylcellulose, Span-20, Tween-20, Propyl paraben and formulation were exhibited the peaks of specific functional groups at their respective frequencies due to no interaction. Mebendazole nanosuspension was prepared at different ratios they are MNS-F1, MNS-F2, and MNS-F3. Particle size and Zeta potential was measured by using Zetasizer and the values of MNS-F1 is 120 nm & -40 mV, MNS-F2 is 261 nm & -7 mV and MNS-F3 is 697 nm & 2 mV respectively. pH of Mebendazole nanosuspension at different ratios of MNS-F1 is 6.73, MNS-F2 is 6.71 and MNS-F3 is 6.76 respectively. Density of Mebendazole nanosuspension at various ratios of MNS-F1 is 0.769, MNS-F2 is 0.765 and MNS-F3 is 0.768 respectively. Sedimentation rate is also observed for the duration of 12 hour by using Nepheloturbidity meter and calculated as Nepheloturbidometric units (NTU) which shows the nanosuspension stability. The anthelmintic activity was performed on adult Indian earthworm, *Pheretima Poi* with optimized MNS-F1, have taken only 90 min for 10 mg and 22 min for 50 mg of concentrations to show the activity for paralysis of earth worm. Hence, the Mebendazole nanosuspension ratio MNS-F1 having more bioavailability compared to marketed products.

**KEYWORDS:** Nanosuspension, Mebendazole, Particles size, Anthelmintic activity and Oral bioavailability.

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## **ADVERSE DRUG REACTIONS IN HOSPITALIZED CARDIAC PATIENTS; CHARACTERISTICS AND RISK FACTORS**

Dudeela Lakshmi Priya<sup>\*1</sup>Dr. Purushothama Reddy K<sup>2</sup>

<sup>\*1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Narayana Pharmacy College, Nellore, A P – 524 002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [priyalucky647@gmail.com](mailto:priyalucky647@gmail.com)

### **ABSTRACT**

**BACK GROUND/AIM:** Adverse drug reactions (ADRs) appear more frequently than actually reported and registered. The main goal of our work was to analyze risk factors, incidence and characteristics of ADRs in hospitalized cardiac patients. **METHODOLOGY:** This prospective study included 200 patients, hospitalized at Cardiology Center of the Clinical Centre of Narayana Pharmacy College, Nellore. ADRs were collected using specially designed questionnaire, based on the list of symptoms and signs that could point out to potential ADRs. Data from medical charts of patients, lab tests and other available parameters were observed and combined with the data from questionnaire. Severity of ADRs was assessed as serious or non-serious according to the World Health Organization (WHO) criteria. Causality was assessed using the Naranjo probability scale. **RESULTS:** A total of 34 % of all the patients experienced at least one ADR. The most common ADRs occurred as nervous system disorders, less frequent were cardiovascular disorders, while the immune system disorders were the rarest. 16 % of all ADRs were characterized as serious, most often caused by Carvedilol and Amiodarone. The majority of patients (97.3 %) recovered without consequences. The multivariate analysis showed independent significant associations between ADRs and age, gender, comorbidities and polypragmasia. **CONCLUSION:** ADRs represent a significant issue in hospitalized cardiac patients population. The most significant predictors for ADRs in observed population were age, comorbidity, number of medications used during hospitalization and patients' gender. Preventive measures such as pharmacotherapy rationalization and continual education of health care professionals could reduce the frequency of ADRs appearance in patients with detected risk factors.

**KEY WORDS:** Drug Toxicity, Heart Diseases, Hospitalization, Risk Factors.

## **LIPOSOMAL GEL FOR SITE SPECIFIC TOPICAL DELIVERY**

B. Swathi<sup>1\*</sup>, M. Santhosh aruna<sup>2</sup>, K.Yalla reddy<sup>3</sup>

\*1Assistant professor, Jagan’s college of pharmacy, Nellore, A.P, India

<sup>2</sup>Associate professor, Jagan’s college of pharmacy, Nellore, A.P, India

<sup>3</sup>Associate professor, Jagan’s college of pharmacy, Nellore, A.P, India

\*Corresponding Author E-mail address:[swathi.nrnppharma@gmail.com](mailto:swathi.nrnppharma@gmail.com)

### **ABSTRACT**

Topical drug delivery is an attractive route for local and systemic treatment. In the past few decades, considerable attention has been focused on the development of a new drug delivery system. To increase permeability chemical and physical approaches have been examined to lower stratum corneum barrier properties. Among several approaches particulate drug delivery is widely used to enhance drug permeation across the skin for cosmetic and dermatological fields.

Colloidal particulate drug carriers have distinct advantages over conventional dosage forms. Liposomes are acceptable, superior carriers and have ability to encapsulate both hydrophilic and lipophilic drugs and protect them from degradation. The topically applied liposomal formulations, particularly those prepared from lipid mixtures of composition similar to the stratum corneum, would be an effective delivery system for the treatment of skin diseases. The benefits of site specific drug delivery by using Transdermal drug delivery system include improved patient compliance, convenience and less elimination of hepatic first pass effect. Topical liposomal gel which reduces oral conventional problems and enhance drug bioavailability more over to less cost which beneficial to industrial economy.

**KEY WORDS:** Liposomal gel, Site specific delivery, Colloidal carrier, industrial economy.

## **EVALUATION OF ANTIHYPERTENSIVE DRUGS EFFECTIVENESS IN THE MANAGEMENT OF HYPERTENSION IN HEMODIALYSIS PATIENTS**

Pramidi Jahnavi<sup>\*1</sup>Dr. Purushothama Reddy K<sup>2</sup>

<sup>\*1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Narayana Pharmacy College, Nellore, A P.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [pramidi.janu1996@gmail.com](mailto:pramidi.janu1996@gmail.com)

### **ABSTRACT**

**BACK GROUND/AIM:** Incidence of Chronic Kidney Disease (CKD) has doubled in the past 15 years. Hypertension (HTN) is common and poorly controlled among patients with CKD. Over 1 million people worldwide are alive on dialysis or with a functioning graft. HTN predisposes these patients to risk of development of cardiovascular, neurological complications leading to high morbidity, decreased quality of life and leads to mortality. **METHODOLOGY:** The prospective observational study was conducted for 6 months (August 2018 to January 2019) in Tertiary care teaching hospital NMCH, Nellore. A total of 135 CKD patients were recruited. **RESULTS:** Analgesic abuse (29.6 %) was the most observed risk factor, followed by Hypertension (20 %), Diabetes (14.8 %), both Hypertension & Diabetes (8.8 %) & Polycystic Kidney Disease (1.48 %). 25.18 % patients were of unknown cause. Hypertension (60 %) topped the list of all co-morbidity, followed by hypertension and Diabetes Mellitus (32.59 %), Hypertension & Cardiovascular Diseases (3.7 %), Hypertension & Thyroid Diseases (2.22 %) and Hypertension & Sleep Apnea (1.48 %). The 33 patients were categorized as predialytic, intradialytic and post dialysis complications. Out of 135 patients almost 34 combinations were prescribed for management of HTN in hemodialysis. Out of 34 only 14 combinations were considered for evaluating the effectiveness of drugs. 20 combinations were excluded as these combinations were advised only in single patient. The best average Systolic BP was controlled by Prazosin (7.65 + 9.88) and diastolic BP was controlled by Cilnidipine (6.34 + 8.7) in one drug regimen. **CONCLUSION:** We conclude that a clinical pharmacist can play a major role in improving patient's knowledge by patient educating the patients. Clinical activities such as patient counselling, medication review, pharmaceutical care program helps to increase the patients practice in disease management. Thus pharmacist has a potential role as patient educator in the management of chronic diseases.

**KEY WORDS:** Hypertension (HTN), Chronic Kidney Disease (CKD), Hemodialysis complications, Disease management.

*P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY, KADAPA, A.P.*

## **FORMULATION AND EVALUATION OF TRANSDERMAL PATCHES OF ONDANSETRON HYDROCHLORIDE**

P.Komali \* Y.Dastagiri Reddy, C.Madhusudhana Chetty, K.Sampath Kumar

Department of Pharmaceutics,  
Santhiram College of Pharmacy, Nandyal, A.P

\*Corresponding Author E-mail address: [dastu1984@gmail.com](mailto:dastu1984@gmail.com)

### **ABSTRACT**

In the present work, an attempt has been made to develop a matrix-type transdermal therapeutic patch comprising of Ondansetron-HCl with different ratios of hydrophilic (Hydroxy Propyl methyl cellulose) and hydrophobic (ethyl cellulose) polymeric combinations using solvent evaporation technique. The physicochemical compatibility of the drug and the polymers was studied by infrared spectroscopy. The results obtained showed no physical-chemical incompatibility between the drug and the polymers. The various physicochemical evaluation parameters revealed that the prepared patches were mechanically and chemically stable. The optimized F9 formulation (HPMCK4M: EC: PVP) shows diffusion independent manner of 85.98% at the end of 24<sup>th</sup> hr. Kinetic models reveal that the predominant mechanism is diffusion and obeys zero order release kinetics, and the diffusion exponent for optimized F9 formulation follows non-fickian drug release mechanism.

**KEYWORDS:** Transdermal drug delivery, Ethyl cellulose and Hydroxy propyl methyl cellulose, Ondansetron HCl.



## **EVALUATION OF CARDIOVASCULAR MEDICINE SAFETY PROFILE AMONG URBAN PRIVATE HOSPITALS; A CROSS SECTIONAL STUDY**

R. Lasya Yadav<sup>\*1</sup>Dr. Purushothama Reddy K<sup>2</sup>

<sup>\*1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Narayana Pharmacy College, Nellore, A P.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [lasyaraya77@gmail.com](mailto:lasyaraya77@gmail.com)

### **ABSTRACT**

The Pharmacovigilance is on-going, mandatory process among medical college hospitals. The private hospitals organization is prioritized and structured differently. Regular efficacy and safety evaluations are not conducted as academic research but occur by default in teaching hospitals. This study investigated and collected Adverse Drug Reactions (ADR's) in this site and contrasted with literature from existing studies to draw comparisons and appropriate interventions.

This was a cross sectional observational study design using conventional ADR form from Central Drugs Standard Control Organization (CDSCO) and checklist of cardiovascular medicine specific adverse reactions which was administered for data collection after necessary formalities for patient recruitment. There were statistically significant differences in total number of cardiovascular medications prescribed, the common cardiovascular medicines used, common concomitant medicine prescribed. The ADR profile showed commonly mild and moderate severity with low incidence of severe adverse event.

The adverse reaction profile did have large number of reactions but in the milder range. The cautious prescribing of large number of medicines with low intensity ADRs indicates the discharge of cautious responsibility due to direct liability and awareness. Peer misdemeanors among small circle of professionals would have severe repercussions on their clientele.

**KEY WORDS:** Cardiovascular drugs, Pharmacovigilance, Drug safety, Adverse drug reactions (ADR), ADR reporting in private sector.

## **COST EFFECTIVENESS ANALYSIS OF COMBINED INHALED CORTICOSTEROIDS AND BRONCHODILATORS FOR SEVERE AND VERY SEVERE COPD PATIENTS**

M. Balaji Naik\*, Dr. Shaik Kareemulla<sup>1</sup>

<sup>1</sup>Assistant Professor, Department of pharmacy practice, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa, Andhra Pradesh, India 516003

\*Corresponding Author E-mail address: [balajinaikgkd@gmail.com](mailto:balajinaikgkd@gmail.com)

### **ABSTRACT**

This study was designed to evaluate the clinical and economic consequences of Salmeterol/Fluticasone(SF), Formoterol/Budesonide(FB) and Formoterol/Fluticasone(FF) in severe and very severe COPD patients. The objective is to find the most cost-effective drug regimen among SF, FB, FF in COPD patients. After getting the clearance from institutional ethical committee (IEC), a prospective observational comparative study was done. We have divided 90 COPD patients into 3 groups (Group I, Group II & Group III), each group consist of 30 patients. Group I was prescribed with SF, Group II with FB and Group III with FF. We used three parameters such as spirometry test, number of symptom free days & total cost to assess the cost-effectiveness of prescribed regimens. Comparison of cost and effects was done during the period of 6 months. The average FEV1 for group I, group II and group III subjects at initial visit was 33.47%, 33.73% & 33.20% and was increased to 36.60%, 35.8% and 33.4% respectively. Group I patients had 36 SFD, group II patients had 33 SFD and group III patients had 28 SFD. Overall mean total cost for group I, group II and group III subjects was found to be Rs.29725, Rs.32602 and Rs.37155. This study highlighted the favorable therapeutic performance of combined inhaled bronchodilators & corticosteroids. Results from our study showed that SF was the most effective strategy in the treatment of COPD.

**KEYWORDS:** GOLD guidelines, inhaled corticosteroids, bronchodilators, cost-effectiveness, symptom free day (SFD)

## **PHENOBARBITONE INDUCED GINGIVAL HYPERPLASIA: A CASE REPORT**

M. Mounika<sup>1\*</sup>, V. Pravallika<sup>1</sup>

<sup>1</sup>P. Rami Reddy Memorial College of Pharmacy, Kadapa

\*Corresponding Author E-mail address: [mm0431930@gmail.com](mailto:mm0431930@gmail.com)

### **ABSTRACT**

Gingival Hyperplasia (GH), a well-known adverse drug reaction observed on the usage of Anti-Epileptics, Anti-Hypertensives and Immunosuppressants. It is characterized by the accumulation of extracellular matrix in gingival connective tissues, particularly collagenous components, with varying degrees of inflammation. One of the main drugs associated with the occurrence of gingival hyperplasia is Phenobarbitone, it is a well-known Anti-Epileptic drug, it acts by increasing the Chloride ion cell influx leading to a hyperpolarization and thus reduces the epileptic condition. As it also reduces the Calcium influx it results in the reduction of folic acid uptake, thus limiting the production of active collagenase causing increased Gingiva size. The present study is a case of Gingival hyperplasia induced by Phenobarbitone in female child patient of 5 years of age admitted in PICU ward, with cerebral palsy and global developmental delay with Epilepsy who experienced GH on usage of Syp. Gardinal (Phenobarbital) 3ml for a period of 4 1/2 years and the child was treated with Mucopain Ointment and Scaling was done by a periodontist. The study shows that, identification, monitoring the adverse Drug Reaction is the major activity of a clinical pharmacist and specific treatment has to provide for the better life style of the subject.

**KEY WORDS:** Cerebral Palsy, Epilepsy, Phenobarbitone, Gingival Hyperplasia.

## **QBD BASED NOVEL COMBINATIONAL NANOINVASOMAL GEL OF ATENOLOL AND GLIBENCLAMIDE: *IN VITRO* AND *IN VIVO* STUDIES**

**P. ANITHA<sup>1\*</sup>, S.V SATYANARAYANA<sup>2</sup>**

<sup>1</sup>Department of Pharmaceutics, Research scholar, JNTUA, Anantapuramu, AP, India

<sup>2</sup>Department of Chemical Engineering, JNTUA, Anantapuramu, AP, India.

\*Corresponding Author E-mail address: [posina.anitha26@gmail.com](mailto:posina.anitha26@gmail.com)

### **ABSTRACT**

**Background:** Diabetes mellitus (Type 2 diabetes) is also associated with an increased risk of premature death due to cardiovascular disease (CVD) where hypertension is a major risk factor. Present medication systems for the treatment of such chronic coexisted diseases are inconvenient to overcome the side effects. Therefore, investigations are desired to deliver antidiabetics and antihypertensive using novel delivery approaches. **Objectives:** In present research, aims to provide the latest development in combinational delivery of antidiabetics and Antihypertensives with special emphasis to Nanoinvasomes a vesicular approach. **Methods:** In this Nanoinvasomes were prepared containing two drugs and optimized using Box-Behnken design. Phospholipon®90G, ethanol, and Limonene-D each at three levels, were selected as independent variables, while entrapment efficiency and transdermal flux of both drugs were identified as dependent variables. The optimum formulation was selected by point prediction method. The optimized formulation was further evaluated for SEM, Zeta seizer, *in vitro* drug release, *in vitro* drug permeation, *in vivo* pharmacokinetic study. **Results:** Optimized formulation shows entrapment efficiency and flux values which is in agreement with the predicted values generated by design. The pharmacokinetic study presented that transdermal nanoinvasomal gel formulation showed improvement in bioavailability of two drugs with respect to the control formulation. **Discussion and Conclusions:** It was concluded that these findings suggested that TDD formulation aimed for both activities has been successfully developed. Thus, these combinations can be explored in future to develop a rational therapy regimen to treat especially hypertensive diabetic patients.

**KEY WORDS:** Transdermal delivery, Nanoinvasomal gel, Atenolol, Glibenclamide, Combination.

## **DAPSONE INDUCED HEPATOCELLULAR INJURY IN 25-YEAR-OLD FEMALE PATIENT: A CASE REPORT**

S.K. Sai Pravalika\*, Dr. Shaik Kareemulla<sup>1</sup>

<sup>1</sup>Assistant professor, Department of pharmacy practice, P. Rami Reddy memorial college of pharmacy,  
Kadapa.

\*Corresponding Author E-mail address: [pravalika1503@gmail.com](mailto:pravalika1503@gmail.com)

### **ABSTRACT**

Drug-induced liver injury is an important cause of hepatotoxicity and poses a challenging clinical problem with respect to both diagnosis and management. Patients susceptible to hepatotoxicity on exposure to Dapsone are constantly on the rise. Dapsone (4,4'-diaminodiphenylsulfone) is the parent compound of the sulfones. It has potent anti-parasitic, anti-inflammatory and immunomodulatory effects. It is used alone or in combination with rifampicin to treat leprosy, dermatitis herpetiformis. It is also indicated prophylactically to prevent pneumocystis pneumonia in AIDS patients. The patients suffering from toxoplasmosis (unable to tolerate trimethoprim with sulfamethoxazole), are treated with Dapsone. It may cause severe adverse reactions, rarely because a hypersensitivity reaction called Dapsone syndrome. It is characterized by fever, hepatitis, exfoliate dermatitis, lymphadenopathy and hemolytic anemia. It is a manifestation of the DRESS (drug rash with eosinophilia and systemic symptoms) syndrome which is a serious condition that has been reported in association with various drugs. However, the clinical use of Dapsone is limited because of dose-dependent adverse hematological reactions. The cholestatic injury caused by dapsone and its *N*-hydroxylated metabolites hinders bile flow and causes oxidative stress and hepatic necrosis. Here we report a case of 25-year-old female suffering from high grade fever associated with chills & rigors, vomitings, yellowish discolorations of eyes & urine, eosinophilia, multiple exfoliations on skin, papular lesion & tenderness on abdomen, which was managed successfully with corticosteroids after withdrawal of Dapsone. The case is being reported to emphasize the need for timely diagnosis and prompt treatment of this rare complication for successful outcomes. Hence, identifying and reporting the hepatotoxic potential of Dapsone by clinical pharmacists is highly warranted.

**KEYWORDS:** Dapsone syndrome, cholestasis, sulfone, N-hydroxylation.

***P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY, KADAPA, A.P.***

## **ANTIPSYCHOTICS IN CHILDREN AND ADOLESCENTS WITH SCHIZOPRENIA: A SYSTEMATIC REVIEW AND META –ANALYSIS**

P.Nishad<sup>1\*</sup>, S.K. Sai pravalika<sup>1</sup>, Dr. Shaik Kareemulla<sup>2</sup>

<sup>1</sup>Pharm D Intern, Department of pharmacy practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa

<sup>2</sup>Assistant professor, Department of pharmacy practice, PRRM College of Pharmacy, Kadapa.

\*Corresponding Author E-mail address: [nishadpnk89@gmail.com](mailto:nishadpnk89@gmail.com)

### **ABSTRACT**

**OBJECTIVE:** To systematically review the efficacy and tolerability data of antipsychotics in children and adolescents with schizophrenia. **MATERIALS AND METHODS** **Search Strategy:** Electronic searches were carried out using Pubmed, Psych Info and Google Scholar with keywords of ‘childhood onset’, ‘adolescent onset’, children, adolescent, ‘schizophrenia’ and ‘antipsychotic’ (and names of individual antipsychotics) used in various combinations. The searches were carried out in Further studies were identified from the cross references. Randomized controlled trials were included for meta-analysis **Statistical Analysis:** In studies which had more than two groups, effect sizes were calculated for individual comparisons between different drugs or between a drug and placebo. Mean effect sizes and confidence intervals were calculated for comparison of first generation antipsychotic (FGA) versus placebo, second generation antipsychotic (SGA) versus placebo, FGA versus SGA, and clozapine versus other drugs. The effect size is a measure of the effectiveness, the greater the value of effect size, the greater is the efficacy **Results:** In total 50 studies were identified which had evaluated at least one antipsychotic medication in children and adolescents with schizophrenia. Of these, 31 studies were excluded because they were open label or were retrospective studies (chart reviews) and case series. These studies reported the usefulness of first generation antipsychotics (FGAs) as well as the second generation antipsychotics (SGAs). These studies evaluated amisulpiride, aripiprazole, clozapine, olanzapine, quetiapine, risperidone, thiothixene and ziprasidone. Evidence suggests that both first generation antipsychotics (FGA) and second generation antipsychotics (SGAs) are better than placebo and clozapine is superior to all other antipsychotics in treatment of schizophrenia in children and adolescents. **CONCLUSION:** FGAs and SGAs are effective in the treatment of children and adolescents with schizophrenia. Clozapine apparently is the most effective antipsychotic in this condition.

**KEYWORDS:** Adolescents; antipsychotics; children; schizophrenia

## **A CLINICAL STUDY ON KEARNS SAYRE SYNDROME**

K.Sravani\*

Pharm-D Intern, P. Rami Reddy Memorial College of Pharmacy, Kadapa, A.P.

\*Corresponding Author E-mail address: [ksravani7177@gmail.com](mailto:ksravani7177@gmail.com)

### **ABSTRACT**

Kearns sayre syndrome (KSS) is a rare genetic condition caused by deletions of large portions of mitochondrial DNA, resulting in the loss of genes involved in the oxidative phosphorylation pathway. Deletions are heteroplasmic (i.e., a single cell can harbour both deleted and normal DNA molecules). The abnormal DNA threshold depends on the organ, they may be either due to point mutations located in the mtDNA encompassing tRNA genes or in nuclear genes involved in mtDNA maintenance (RRM2B). Pathophysiology of KSS includes deletions of various lengths of mtDNA, nuclear DNA, mt-tRNA mutations and mutations in 12S rRNA and 16S rRNA result in defective mitochondrial function. Here we present a case of 42 yrs old female patient with history of progressive external ophthalmoplegia since 20 yrs presented with the chief complaints of generalised myalgia since 1 month, unilateral headache since 22 yrs associated with weakness of lower limbs since 20 yrs and had history of drooping of both eyelids, difficulty of moving eyeballs in all directions & is unable to rise, so the patient was diagnosed as mitochondrial myopathy with Type-II Diabetes mellitus with CPEO (Chronic Progressive External Ophthalmoplegia) with Kearns Sayre Syndrome. The diagnosis of this syndrome is important because of its potential morbidity & mortality. In order to prevent serious complications of the syndrome, it is necessary to monitor the patients closely during the treatment course.

**KEYWORDS:** Kearns sayre syndrome, mitochondrial myopathy, Prognosis, Morbidity.

**TAMOXIFEN INDUCED ISCHEMIC STROKE IN A  
POST CHEMOTHERAPY STATE PATIENT ALONG WITH CVA AND  
LYMPHEDEMA**

Y Parimala, S Arshiya Banu, Meda Venkatasubbaiah,

Department of Pharmacy Practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh, India -516003.

\*Corresponding Author E-mail address: [Sharonchinna143@gmail.com](mailto:Sharonchinna143@gmail.com)

**ABSTRACT**

Putting this clinical research case study forward is due to Cancer starts when cells begin to grow out of control where as Breast cancer is the most common cancer in worldwide and has ranked number one in cancer among Indian females. Global burden of breast cancer is expected to cross 2 million by the year 2030. Mutations in DNA, Inheritance of mutated genes from parents, Hormones and other life style related risk factors are also causes the breast cancer. It is diagnosed by Biopsy, New imaging tests etc. Estrogen blocking drugs are typically used to help treat breast cancer, but some might also help to prevent it. Tamoxifen and Raloxifene have been used for many years to prevent breast cancer before and after mastectomy. Mastectomy leads to certain complications like short-term breast swelling, soreness, wound infection or bleeding, lymphedema (swelling of the arm, if the lymph nodes removed). Herein, we describe a 73 years old female patient got admitted in RIMS, Kadapa. She was known hypertensive taking T. Atenolol 25 mg and got operated for carcinoma- left breast, post chemotherapy state with lymph edema of left upper limb with CVA was seen. At first it was estimated that the patient had hemorrhagic stroke. During patient counseling it was found that it is she was taking tablet Tamoxifen 20mg daily from past 8yrs. Tamoxifen is having a serious side effect of causing Stroke in the patients. Upon evaluation it was confirmed that it was a drug induced (Tamoxifen) Ischemic stroke along with CVA and lymphedema. Taken together, our findings suggest that as a clinical pharmacist, we are ethically bound to evaluate and understand the nature of side effects caused by the Anti-Neoplastic drugs and initial patient education, awareness on drug effects has a large impact on their attitudes towards the treatment.

**KEYWORDS:** Mutation, Mastectomy, Lymphedema, Biopsy, Patient education



**SIGNIFICANCE OF MEDICATION RECONCILIATION IN INTERCEPTING  
ADMISSION MEDICATION ERRORS IN THE GENERAL MEDICINE  
DEPARTMENT**

V. PRASANNA REDDY<sup>1\*</sup>, M.VENKATASUBBAIAH<sup>2</sup>

<sup>1</sup>Pharm D Internship, Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa.

<sup>2</sup>Associate Professor, Department of pharmacy practice, P. Ramireddy Memorial College of Pharmacy, Kadapa.

\*Corresponding Author E-mail address: [prasannareddy280@gmail.com](mailto:prasannareddy280@gmail.com)

**ABSTRACT**

The aim of the study was to monitor the discrepancies at admission and during the treatment. A prospective observational study was conducted for a period of 6 months at a South Indian Tertiary Care Hospital. The study was conducted according to the Retrospective model of medication reconciliation. Best Possible Medication History was collected on interacting with patients, caregivers, and medical records. This information was compared with the physician's prescription at the time of admission. Differences were documented as intentional and unintentional discrepancies. Identified errors were classified based on NCCMERP Guidelines. DDIs were classified according to their severity. Errors were rectified before reaching the patient. Out of 106 prescriptions, 44 (84.62%) Intentional and 8(15.38%) unintentional discrepancies were identified. We have also identified 46 (43.40%) medication errors, 60% of medication errors were of incomplete prescriptions. and 26 (56.52%) prescriptions were intervened. We have identified 203 possible Drug-Drug Interactions with an average of 1.92 ( $\pm 2.71$ ) per prescription. Among them 105 (51.72 %) were Major, 90 (44.33 %) were Moderate and 8 (11.66 %) were minor. Our study concludes that lack of medication reconciliation leads to medication errors, and on the successful implementation of the Medication Reconciliation, as a tool in detecting & rectifying admission medication errors, we can increase patient safety.

**KEYWORDS:** Medication Reconciliation, Medication Discrepancies, Medication Errors, Omission.

***P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY, KADAPA, A.P.***

## **UNOPERATED TETRALOGY OF FALLOT: A CLINICOPATHOLOGIC STUDY OF A 12 MONTHS CHILD AT GOVERNMENT GENERAL HOSPITAL, KADAPA.**

N. Harini<sup>1\*</sup>, K. Sai Prasanna<sup>1</sup>, Dr. Shaik Kareemulla<sup>2</sup>

<sup>1</sup>Pharm D Intern, Department of Pharmacy Practice, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa.

<sup>2</sup>Assistant Professor, Department of Pharmacy Practice, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa.

\*Corresponding Author E-mail address: [prasannareddy280@gmail.com](mailto:prasannareddy280@gmail.com)

### **ABSTRACT**

Tetralogy of Fallot is a congenital cardiac malformation that consists of an interventricular miscommunication. This combination of lesions occurs in 3 of every 10,000 live births and accounts for 7–10% of all congenital cardiac malformations. It is a condition caused by a combination of defects in all the 4 heart chambers that are present at birth. These defects affect the structure of heart, cause oxygen poor blood to flow out of the heart and to the rest of the body. Infants and children with TOF usually have blue tinged skin. Along with the cyanosis, respiratory distress and hyper-cyanotic spells (TET spells) may also present. These TET spells are life threatening and may be fatal which requires intervention. It occurs as a result of spasm of right outflow tract. Feeding, crying and exertion are the precipitating factors of TET spells. Prevalence rate of TOF is 3.5% affecting males and females equally. Pneumonia is an infection of lungs that inflames air sacs in one or both lungs. The air sacs may fill with fluid or pus causing cough with phlegm, fever and chills. It is most common in infants and young children and people with weakened immune system. A 12 months' female child with this congenital heart defect and pneumonia was discussed in this report. However most of the children with TOF needs surgery, but timings may vary depending on the condition and severity. This is important to note that surgery for TOF is palliative but not curative. This report concludes that there is a need to increase awareness of TOF so as to encourage early diagnosis and therefore promotes better outcomes.

**KEY WORDS:** Tetralogy of Fallot, Emergency care, Pulmonary cyanosis, Heart murmurs.

## **A STUDY ON ETIOLOGY, SEVERITY, MANAGEMENT AND OUTCOME OF ACUTE PANCREATITIS IN TERTIARY CARE TEACHING HOSPITAL**

R.N.R.Prasanna lakshmi\*, N.Ashwini

Pharm D Internship, Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa, Andhra Pradesh, India-516003.

\*Corresponding Author E-mail address:[prasannaarun968@gmail.com](mailto:prasannaarun968@gmail.com)

### **ABSTRACT**

Acute pancreatitis (AP) is one of the most common diseases in gastroenterology. During the last decades, there is an increasing incidence and most common cause for hospitalization. Practical understanding of etiology and severity will accommodate in advocate the appropriate treatment. AIM: To provide safe and effective management by evaluating the cause, severity and appropriate treatment, outcome in patients with acute pancreatitis. METHODS AND MATERIALS: This Prospective interventional study was conducted for a period of 6 months RIMS hospital Kadapa. A total 60 patients were recruited under inclusion criteria by using study materials like patient data collection proforma, ICF. Etiology and severity was assed using specially designed criteria's. Treatment was given according to ACG-AGIP guidelines, outcome was measured in terms of length of stay in hospital. RESULTS: Out of 60 patients 90% of patients were adults and middle aged, 24 (40%) patients with alcohol, 33(55%) with alcohol and smoking, 3(5%) with gall stones. On severity assessment 42 (70%) patients were mild and 18 (30%) were moderate. All the patients were treated based on the ACG-AGIP guidelines after assessing the cause and severity. Out comes were measured after the completion of the treatment course 23(38.3%) patients were under category better control, 25 (41.6%) patients were under moderate category, 7(11.6%) patients under category poor control. CONCLUSION: we are concluded that for safe and effective management of acute pancreatitis patients there is need to evaluate cause, clinical severity, appropriate treatment based on guidelines and outcome using length of stay in hospital.

**KEY WORDS:** Acute pancreatitis, Etiology, Severity, ACG-AGIP guidelines, Outcome, morbidity and mortality.

## **A VENTRICULAR PERITONEAL SHUNT INFECTION AND ITS SIGNIFICANCE OF REPORTING TO MATERIOVIGILANCE**

V. Pravalika<sup>1\*</sup>, M.Mounika<sup>2</sup>

<sup>1,2</sup> Pharm D Internship, Department of Pharmacy practice, P.Rami Reddy Memorial College of Pharmacy,  
Kadapa, Andhra Pradesh, India-516003.

\*Corresponding Author E-mail address: [Pravallikavanguru03@gmail.com](mailto:Pravallikavanguru03@gmail.com)

### **ABSTRACT**

Ventricular shunts are the most common neurosurgical procedure performed among pediatrics in India for the treatment of Hydrocephalous, a pathological increase in intracranial cerebrospinal fluid (CSF) volume. Shunts are drainage devices designed to sustain intracranial pressure and prevent further CSF accumulation, but they can introduce pathogens into the central nervous system with a rate ranging from 5.6% to 12.9%. Shunt contamination is often caused when the proximal end of shunt comes in contact with normal skin flora, where it gets exposed group of Staphylococcus epidermidis and S. aureus organisms, causing activation of immune system. As Shunt infections can complicate the successful treatment of hydrocephalus, leading to increased healthcare costs and patient morbidity, this can be prevented by using aseptic techniques, chemoprophylaxis, and/or antibiotic-eluting shunts. Treatment of a shunt infection may include removal of the infected hardware, placement of a drainage device, and use of IV or intraventricular antibiotics involving both gram-positive and gram-negative coverage, such as Vancomycin and a third-generation cephalosporin, would be recommended and also reporting of these shunt induced reactions to Materiovigilance program of India, which closely monitors any undesirable occurrences resulting from the use of medical devices by means of having a system in place which comprises identifying, collecting, reporting, and estimating undesirable occurrences and reacting to them, or safety corrective actions after their post marketing phase. It is expected that effective implementation of this program will safeguard the safety of device users substantially by preventing the recurrence of adverse effects and reducing the risk associated with the use of medical devices.

**KEYWORDS:** Ventricular shunt infection, Hydrocephalous, Materiovigilance.

**SYNTHESIS, CHARACTERIZATION AND ANTITUBERCULAR ACTIVITY OF 1-METHYL-3-(4-SUBSTITUTED-1,3-THIAZOL-2-YL)-2-(PYRIDIN-4-YL)-2,3-DIHYDRO QUINAZOLIN-4(1H)-ONES**

*\*ND Nizamuddin<sup>a</sup>, Hindustan Abdul ahad<sup>b</sup>, Devanna Nayakanti<sup>c</sup>*

<sup>a</sup>Research Scholar, JNTUA Anantapuramu-515002, AP, India

<sup>b</sup>Dept of Industrial Pharmacy, Raghavendra Institute of Pharmaceutical Education and Research, Anantapuramu-515721, AP, India

<sup>c</sup>Dept of Pharmaceutical Chemistry, JNTUA Oil Technology and Pharmaceutical Research Institute, Anantapuramu-515001, AP, India

\*Corresponding Author E-mail address: [nnizamudin1988@gmail.com](mailto:nnizamudin1988@gmail.com)

**ABSTRACT**

2, 3-Dihydro quinazolinone derivatives, which are known for number of biological activities, have been reported to show significant antibacterial and antitubercular activities. Eleventh compounds that belong to 1-methyl 3-(4-substituted-1,3-thiazol) quinazolinone were synthesized. Compounds 5Ea1–5Ee5 showed a minimum inhibitory concentration value between 6.25 and 100 µg/mL against Mycobacterium tuberculosis. Compounds 5Eg7 on the other hand, showed significant antibacterial activity against Staphylococcus albus and Streptococcus pyogenes. The use of Phenyl thiazole, 3-AminoPhenyl thiazole, 4-Amino phenyl thiazole, 2-Hydroxy phenyl thiazole, 4-Hydroxy phenyl thiazole, 2,4-dihydroxy phenyl thiazole, 4-Chloro phenyl thiazole, 2,4-Dichloro phenyl thiazole, 4-Methyl phenyl thiazole, 4-Methoxy phenyl thiazole and 4-Nitro phenyl thiazole substituents at 3-position of quinazolinone was found to increase antitubercular activity. A binding affinity prediction by autodock vina was higher for the phenyl series, which may be due to increased hydrophobic interactions within the binding site of enoyl-acyl carrier protein reductase.

**KEYWORDS:** quinazolinones, antitubercular activity, antibacterial activity, autodock vina

## **ASSESSMENT OF PRESCRIBING PATTERNS USING WHO-INRUD DRUG INDICATORS IN DIABETESMELLITUS PATIENTS**

T.S.Durga Prasad<sup>1\*</sup>, D.Ranganayakulu<sup>2</sup>, N. Devanna<sup>2</sup>

<sup>1</sup>Research Scholar-Pharmaceutical Sciences, JNTUA, Ananthapuramu, email:tsdurgaprasad@gmail.com

<sup>2</sup>Professor & Principal, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati

<sup>3</sup>Director, Oil Technological and Pharmaceutical Research Institute(OTPRI), JNTUA, Ananthapuramu

\*Corresponding Author E-mail address: [tsdurgaprasad@gmail.com](mailto:tsdurgaprasad@gmail.com)

### **ABSTRACT**

Diabetes mellitus is a chronic metabolic pandemic disease which requires treatment for life time. The prevalence of diabetes is 2.8% in 2000 and will be around 4.4% in 2030. Number of person that will be affected with diabetes is projected to be 376 million in 2030. According to the Indian Council of Medical Research-Indian Diabetes study (ICMR), 62.4 million people with diabetes are living in India. A prospective observational study was conducted on 165 diabetes mellitus inpatients of at a tertiary care hospital for 6 months between July–December 2018 to assess drug utilization patterns according to World Health Organization (WHO)-International Network of Rational Use of Drugs (INRUD) indicators. Among 165 diabetes mellitus patients 114 (69.1%) were male and 51 (30.9%) were female. Out of 706 drugs prescribed to the diabetes mellitus inpatients, 72 % drugs were prescribed by their generic names. Average number of drugs per prescription was 4.3. Prescriptions for injections and antibiotics were 23.4% and 38.7%, respectively. Drugs prescribed from an Essential Drug List(EDL) was 94.2%. The percentages of patients on anti-diabetic monotherapy, combination therapy were 103 (62.4%) and 62 (37.6 %) respectively. In monotherapy, metformin was most commonly prescribed in 67 (40.6%) patients where as in combination therapy glimepiride and metformin was prescribed in 26 (15.8%) patients. This study describes the use of various commonly prescribed antidiabetic drugs. Prescribing patterns need to be improved in accordance with WHO core indicators.

**KEYWORDS:** Prescribing Patterns, Drug Use Indicators, Type II Diabetes, Oral Hypoglycaemics

## **FORMULATION AND EVALUATION OF BILAYERED TABLETS OF AMLODIPINE BESILATE AND METOPROLOL SUCCINATE**

T.Vamsi Sai Krishna\*, Y.Dastagiri Reddy, C.Madhusudhana chetty, D.Maheshwar Reddy, V.Vijay Kumar,  
S.Gousia Begum

Department of Pharmaceutics, Santhiram College of Pharmacy, Nandyal, A.P

\*Corresponding Author E-mail address: [dukevamsi999@gmail.com](mailto:dukevamsi999@gmail.com)

### **ABSTRACT**

Bilayered tablet is a novel drug delivery system where combination of two or more drug in a single unit in which we can make immediate release (IR) and sustained release (SR) in the same tablet for chronic condition which requires repeated dosing. The Aim of the present work was to develop an optimized bilayered tablet for hypertension patients using Metoprolol Succinate and Amlodipine Besilate. In the formulation of Amlodipine Besilate as immediate release, super disintegrants was used to achieve maximum release by 30 minutes. In Metoprolol Succinate formulation, (HPMC K15 & HPMC K4M), Carbopol, as polymers used for sustained release. FTIR studies were performed to study the incompatibilities with drug and excipients and there was no shift in the peaks drug and polymers. The compressed bilayered tablets were evaluated for weight variation, hardness, friability, disintegration time all the parameters within the limit. *In-Vitro* drug release studies were performed using USP dissolution apparatus type 2 (paddle). The immediate releaselayer of Amlodipine Besilate showed complete release within 30 min and Metoprolol Succinate release was extended up to 24hours. Finally the prepared bilayered tablets of Amlodipine Besilate and Metoprolol Succinate could be suitable candidates for the effective treatment of hypertension and angina linked with it.

**KEYWORDS:** Amlodipine besilate, Metoprolol succinate, Bilayered tablets, Hypertension.

## **DEPRESCRIBING TRIHEXYPHENIDYL IN PSYCHIATRIC PATIENTS & ITS OUTCOMES: A PROSPECTIVE INTERVENTIONAL STUDY**

M. V. Pavan Kumar Reddy\* & Dr. K. Ravindra Reddy

Pharm D Internship, Department of Pharmacy practice, P.Rami Reddy Memorial College of Pharmacy,  
Kadapa, Andhra Pradesh, India-516003.

\*Corresponding Author E-mail address: [pavankumar.ppk@gmail.com](mailto:pavankumar.ppk@gmail.com)

### **ABSTRACT**

Deprescribing, a planned process of reducing or stopping medications that may no longer be benefit or that may be harm with the goal of reducing medication burden and improving quality of life. The aim is to monitor the outcomes after tapering and deprescribing Trihexyphenidyl. It is a prospective interventional study conducted for 6 months among 150 subjects of Psychiatry Dept. Only THP dose was altered. The dose was halved for every follow up (1<sup>st</sup> and 2<sup>nd</sup>) and completely removed in last (3<sup>rd</sup>) follow up. During all the three follow-ups, we assessed the patient's psychiatric disorder intensity & symptoms based on the scores of Brief Psychiatric Rating Scale (BPRS), Extra Pyramidal Symptoms (EPS) & Abnormal Involuntary Movement Scale (AIMS), Epworth Sleepiness Scale (ESS). The data was analysed using Graph-Pad Prism, MS Excel. Only 36% of subjects experienced EPS and the drug was represcribed. 64% subjects didn't experience any EPS. The study results conclude that prophylactic use of THP is not preferable in all patients and useful only in the subjects who experiences EPS during their Anti – Psychotic Therapy. Only 36% subjects were experienced the EPS and 64% didn't. The study concludes, prophylactic use of THP is not preferable in all subjects. It is useful to prescribe THP in patients who experienced EPS, movement problems during the antipsychotic treatment. This reduces the Poly Pharmacy and addiction to the drug.

**KEY WORDS:** Deprescribing, Trihexyphenidyl, tapering, brief Psychiatry Rating Scale, Epworth Sleepiness Scale, Abnormal Involuntary Movement Scale.



## **ISOLATED MICRO-ORGANISMS, SUSCEPTIBILITY PATTERNS AND MANAGEMENT OF DIABETIC FOOT INFECTIONS**

Shaik Mohammed Ishak\*, Dr.P.Gowtham Kumar Reddy

Department of Pharmacy Practice, P. Ramireddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh,  
India

\*Corresponding Author E-mail address: [shaikishak476@gmail.com](mailto:shaikishak476@gmail.com)

### **ABSTRACT**

Diabetic foot infection is one of the most devastating complications in diabetic patients leading to frequent hospitalization and increased mortality. Knowledge about the microbial cause helps to provide appropriate antimicrobial therapy. A prospective interventional study was conducted in patients suffering from diabetic foot infections to determine the microbial isolates, its susceptibility patterns and anti-microbial management in diabetic foot infections in General surgery department of RIMS, a tertiary care teaching hospital. Patient data was obtained using a designed data collection form. All the collected cases were classified based on Wagner's grading system. Pus samples were collected for bacterial culture from 70 patients by swab culture method and processed for isolation, identification of pathogens based on standard CLSI (Clinical and Laboratory Standards Institute) guidelines. Antibiotic sensitivity of the isolates was done by Kirby Bauer disc diffusion method and treatment outcomes were measured with Pressure Ulcer Scale for Healing tool. Out of 70 samples single organism was isolated in 57 patients, 9 patients developed resistance to all the antibiotics and 4 patients did not show bacterial growth. In this study gram negative organisms were more frequently isolated than gram positive organisms. Klebsiella species and E.coli were predominant gram negative isolated bacilli while Staphylococci were predominant in gram positive isolated organisms. Gram negative patients were susceptible to Amikacin followed by Gentamycin. Gram positive isolated patients were susceptible to Ofloxacin followed by Imipenem. In this study both gram positive cocci and gram negative bacilli are responsible for causation of Diabetic Foot Infections (DFI).

**KEYWORDS:** Wagner's grading system, Swab culture method, Kirby Bauer disc diffusion method, Anti-microbial therapy.

## **BIODEGRADABLE STENTS**

Chandrakala podili\*

Department of pharmaceutics, vasavi institute of pharmaceutical sciences,  
Peddapalli, sidhout, kadapa -516247

\*Corresponding Author E-mail address: [chandrakala1009@gmail.com](mailto:chandrakala1009@gmail.com)

### **ABSTRACT**

Biodegradable stents (BDSs) are an attractive option to avoid ongoing dilation or surgery in patients with benign stenoses of the small and large intestines. Biodegradable stents are an attractive, alternative to self expanding metal stents in the treatment of intestinal strictures. Biodegradable stents can be made of biodegradable polymers and biodegradable metals (magnesium alloy). Current treatment of choice for the palliation of blockage caused by malignant or benign growths. A variety of stents have been developed to enhance the efficacy of the procedure, and improvements are ongoing. The future are perspectives in the development biodegradable polymer intestinal stents, the clinical trials have shown promising results, although improved design of stents reduced migration rate are expected. For the biodegradable magnesium intestinal stents, results preliminary studies indicate magnesium alloy to have good biocompatibility. With many key fundamentals and practical issues resolved and progressing biocompatibilities of magnesium alloy, it is possible to use biodegradable intestinal stents made magnesium alloys in hospital in the not too distant future.

**KEY WORDS:** Biodegradable stents, endoscopy, biomaterial, polymer, magnesium alloy.

## **ANTIBIOTIC REGIMENS UTILIZATION FOR COMMUNITY ACQUIRED PNEUMONIA IN A GOVERNMENT GENERAL HOSPITAL**

Dr. Shaik Kareemulla<sup>1</sup>, Govindu Venkateswarlu\*<sup>2</sup>, K. Sreeharinadh<sup>2</sup>

<sup>1</sup>Assistant professor, Department of pharmacy practice, P. Ramireddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003.

<sup>2</sup>Pharm D Intern, Department of pharmacy practice, P. Ramireddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003.

\*Corresponding Author E-mail address: [govindukenkateswarlu00@gmail.com](mailto:govindukenkateswarlu00@gmail.com)

### **ABSTRACT**

Pneumonia is a lower respiratory tract infection characterized by inflammation of lung tissue accompanied by infiltration of alveoli and bronchioles. Most common type is community acquired pneumonia. Initial therapy is usually empirical that is designed to treat various pathogens. In CAP cases, antibiotic therapy should begin at the earliest. The objectives of the study include to identify most common causative micro-organisms, to assess risk of developing CAP in patients having co-morbidities, to identify most commonly prescribed antibiotic regimen. A prospective observational study was conducted for a period of 6 months at RIMS, Kadapa. 120 patients were recruited based on inclusion criteria. Treatment was given according to IDSA & ATS guidelines. In a total of 120 patients, 77 were males and 43 were females. 69 patients belong to 46-55 & above age groups. 84 patients had social habits and 36 patients are without social habits. Patients with single lobe infiltrations are 105 & patients with multiple lobe infiltrations are 15. In our study, streptococcus pneumoniae and pseudomonas aeruginosa were the most common isolated organisms. Monotherapy was given for 7 patients, dual therapy for 97 patients and triple therapy for 16 patients. 33 patients received CEF+AUG, 29 patients received CEF+AZI, 7 patients received LEV, 25 patients received CEF+LEV, 10 patients received CEF+CIP and 16 patients received CEF+AUG+AZI. 100 patients had less than 8 days of hospital stay. Research study concluded that beta lactum antibiotics were the most commonly prescribed class. CEF+AUG was highly recommended drug regimen.

**KEYWORDS:** Streptococcus pneumonia, empirical therapy, inflammation, bronchioles.

## **COGNIZANCE, PHARMACEUTICAL CARE MANAEUVRE AND CLINICAL PEARLS OF DIFFUSE SYSTEMIC SCLEROSIS: A RARE CASE REPORT**

Domмара Archana\*<sup>1</sup>, Dr. Shaik Kareemulla<sup>2</sup>

Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh, India-516003.

\*Corresponding Author E-mail address: [archana8918@gmail.com](mailto:archana8918@gmail.com)

### **ABSTRACT**

Systemic sclerosis is an acquired sporadic disease affecting all races worldwide. In the United States, the incidence is estimated at 9 to 19 cases per million per year. Systemic sclerosis is an uncommon connective tissue disorder characterized by chronic progressive multisystem involvement. The most frequent extra cutaneous complications of systemic sclerosis are characterized by episodes of reversible vasoconstriction in the fingers and toes known as Raynaud's phenomenon and is classified as Primary Raynaud's phenomenon & Secondary Raynaud's phenomenon. Iodine deficiency remains a common cause of hypothyroidism worldwide. Neonatal hypothyroidism is due to thyroid gland dysgenesis in 80–85%, to inborn errors of thyroid hormone synthesis in 10–15%, and is TSH-R antibody-mediated in 5% of affected newborns. Primary Hypothyroidism is confirmed in clinical settings by finding elevated TSH and a low free T4 level. Secondary hypothyroidism, as a result of pituitary dysfunction, results in decreased of both T4 and TSH levels. Tertiary hypothyroidism results from decreased production of TRH by Hypothalamus. ILDs are nonmalignant disorders and are not caused by infectious agents. Clinical evidence of ILD is present in one-half of patients with Progressive systemic sclerosis and pathologic evidence in three-quarters of patients.

**KEY WORDS:** Systemic sclerosis, Raynaud's phenomenon, Hashimoto's thyroiditis, Tyrosine kinase inhibitors, Nail-fold microscopy, Mycophenolate mofetil.

**AN OBSERVATIONAL STUDY ON VARIOUS PHYSICAL CO-MORBIDITIES  
AND MEDICATION USAGE IN PATIENTS ATTENDING TO PSYCHIATRY OUT-  
PATIENT DEPARTMENT IN A TERTIARY CARE HOSPITAL**

E. Sukanya\*

Sree Vidyanikethan College of Pharmacy

\*Corresponding Author E-mail address:

**ABSTRACT**

**AIM:** This study aims to assess physical co-morbidities and medication usage in patients attending to psychiatric services. **METHODOLOGY:** A Hospital based prospective observational study carried out by assessing the physical co-morbidities, medication usage and drug interactions of patients who attended Psychiatry OPD at Sri Padmavathi Medical College for Women, SVIMS, Tirupati over a period of 6 months from June 2019 to Dec 2019 were included in the study. The data were processed with the Mean, Excel 2010, Statistical programme SPSS 25 and p value less than 0.05 were to be statistically significant. **RESULTS:** A total number of 355 patients were included in the study. Among them 176 males (49.57%) and females 179 (50.42%) who have come with mental illness to the psychiatry OP, were evaluated for physical co-morbidities and medication usage. The mean age of psychiatric patients with physical co-morbidities (45.11± 16.82) and without physical co-morbidities (43.97±27.35). Depression 104(29.29%), was seen in maximum number of patients followed by Anxiety 65(18.30%), Schizophrenia 64(18.03%), Mixed anxiety and depression 14(3.94%), Psychosis 11(3.10%) and other psychiatric illness 97(27.32%). 104 cases were associated with physical co-morbidities, of them 48 cases with DDI s were identified. 4 patients were with major, 42 patients were moderate and 2 patients were with minor DDI s. **CONCLUSION:** The potential DDIs should be considered when selecting treatment options in patients with multiple co-morbidities. This is crucial for achieving optimal patient adherence and outcomes. Psychiatrists in collaboration with clinical pharmacist must make sincere efforts to overcome their sense of inadequacy in these conditions. It would save time and money for both the patient and the healthcare system.

## **POSTOPERATIVE INFECTIOUS OUTCOME IN THYROIDECTOMY CASES WITH AND WITHOUT ANTIBIOTICS**

Alishar Sayed\*<sup>1</sup>, Pavani Melapati<sup>2</sup>, Ramanaiah Jagannadham<sup>3</sup>

<sup>1</sup>Doctor of pharmacy (Internship), P. Rami Reddy Memorial College of Pharmacy, Kadapa Andhra Pradesh, India, <sup>2,3</sup>Associate Professor, Department of General surgery, Govt. General Hospital (RIMS), Kadapa, Andhra Pradesh, India

\*Corresponding Author E-mail address: [sayedalishar@gmail.com](mailto:sayedalishar@gmail.com)

### **ABSTRACT**

**Introduction:** Since thyroidectomy comes under the category class 1 surgery (clean surgery), surgical site infection (SSI) rate is very low; however, doctors still have misbeliefs about infection events. **Aim and objectives:** This is a prospective study in which 200 thyroidectomy cases were analysed and for signs of SSI with and without perioperative use of antibacterial medications, and to find out any statistical difference between the two groups in terms of wound infection. **Method:** In total of 200, out of which 100 were given either pre operative or post operative antibiotics and remaining 100 were not administered perioperative antibiotics. Total, subtotal or hemithyroidectomy were performed in all these cases. The mean time of operation was  $80.6 \pm 4.87$  (range: 45-390 min). All cases are followed up for a minimum of 30 days post operatively for any signs of SSI, and if present graded using Southampton grading system for SSI. The findings were tabulated in MS excel format, and analysed using SPSS software. **Results and Discussion:** There is no significant statistical difference between the two groups in terms of SSI, which is proved by a p-value of 0.525 which is insignificant. **Conclusion:** Thyroidectomy, is a clean surgery, with a short duration hospital stay and if the operation is performed under strict condition of sterility and hemostasis, antibacterial medication may not be required to prevent wound infection, which reduces the most cost and discourages antibiotic abuse.

**KEYWORDS:** Thyroidectomy, surgical site infection, prophylactic antibiotic.

## **GULLAIN BARRE SYNDROME – CASE REPORT**

C Priyanka<sup>\*1</sup>, TS Durga Prasad<sup>2</sup>

<sup>\*1</sup>Pharm D IV Year, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati-517503 Email:  
[priyankachigurupatii@gmail.com](mailto:priyankachigurupatii@gmail.com)

<sup>2</sup>Associate Professor, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati-517503

\*Corresponding Author E-mail address: [priyankachigurupatii@gmail.com](mailto:priyankachigurupatii@gmail.com)

### **ABSTRACT**

Gullain Barre Syndrome (GBS) is the most common acute immune-mediated polyneuropathy with several causative factors including campylobacter jejuni and viral infections. GBS is characterised by progressive muscle weakness, usually it occurs in the lower extremities and progressively involves the trunk and the lower extremities. Mainly it involves the demyelination of motor neurons but sometimes it also involves sensory and autonomic nerves. A case of 62 year female started with weakness of lower extremities; on neurological examination her cranial nerve examination was intact. A complete electro diagnostic test is necessary for evaluation of patients with suspected GBS is required for the conduction studies.

**KEYWORDS:** Gullain Barre Syndrome (GBS), Immune-medicated, Polyneuropathy, Demyelination.

## **WERNICKE’S ENCEPHALOPATHY- A CASE REPORT**

K Sri Sowmya<sup>1\*</sup>, TS Durga Prasad<sup>2</sup>

<sup>1</sup> Pharm. D IV Year, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati-517503

<sup>2</sup> Associate Professor, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati-517503.

\*Corresponding Author E-mail address: [sowmyakanduri9@gmail.com](mailto:sowmyakanduri9@gmail.com)

### **ABSTRACT**

Wernicke’s encephalopathy (WE) is a neuropsychiatric disorder characterized by nystagmus, ataxia and oculomotor abnormalities, and a confusional state. It is most commonly found in chronic alcoholics and malnutrition patients. WE is caused by vitamin B1 (Thiamine) deficiency. Wernicke’s encephalopathy, if not recognized and treated, can become irreversible. Common findings in Magnetic Resonance Imaging (MRI) include: symmetric T2 Weighted Image (T2) hyperintensities in peri-aqueductal gray matter, dorsal medial thalamus and mammillary bodies. This case study was related to a 25 year old female patient who developed sudden onset of tingling and burning sensation of both left upper and lower limbs and carpedal spasm of both hands.

**KEY WORDS:** Wernicke's encephalopathy (WE) , Magnetic Resonance Imaging (MRI), Chronic alcoholism, Vitamin B1 (Thiamine).



## **NECESSITY OF EFFECTIVE ASTHMA ACTION PLAN**

Y. Sree Harini<sup>1\*</sup>, Dr.T.Anusha<sup>2</sup>

<sup>1\*</sup>Y.Sreeharini, Pharm D, Annamacharya College of Pharmacy, Rajampet, -516126.

\*Corresponding Author E-mail address: [harinihajun@gmail.com](mailto:harinihajun@gmail.com)

### **ABSTRACT**

Asthma is a chronic disease involving the airways (tubes) that carry air in and out of the lungs. These airways are inflamed in people with asthma. The inflammation makes the airways very sensitive, and the tubes often react to allergens or irritations. Asthma exacerbations can lead to absenteeism, presenteeism, urgent care and Emergency Department (ED) visits, hospitalizations, discomfort, dissatisfaction with care, and death. A Written Asthma Action plan (WAAP) is a written, individualized worksheet that shows you the steps to take to keep your asthma from getting worse. A WAAP is only one part of asthma self-management; other components include scheduled visits for asthma, monitoring of rescue medication use, and education in how to monitor symptoms and lung function and how to use medications. Self-management should be part of the treatment plan for any chronic disease because it empowers patients, reduces dependency, and minimizes the response time so that the morbidity and pain due to episodic exacerbations can be reduced. As part of a comprehensive asthma management plan, the principal aim of a WAAP is to help patients recognize asthma exacerbations early and initiate prompt treatment. This review explains necessity of effective asthma action plan and components of asthma action plan and the checklist for Asthma Action Plan.

**KEYWORDS:** Asthma, Emergency Department (ED), Exacerbations, Written Asthma Action plan (WAAP).

## **A REVIEW ON OBSESSIVE COMPULSIVE DISORDER (OCD) AND IT'S CARE**

Chennasamudram Chenna kesavulu\*

Annamacharya College of pharmacy, Rajampet, Kadapa, Andhra Pradesh-516126

\*Corresponding Author E-mail address: [chanduh1000@gmail.com](mailto:chanduh1000@gmail.com)

### **ABSTRACT**

Obsessive compulsive disorder (OCD) is an anxiety disorder. Obsessive compulsive disorder causes the brain stuck on a particular thought or urge. Actually these patients are having an obsessive thoughts means they always occurring of images, several thoughts or pictures over and over in the mind. These thoughts or rituals can triggered more anxiety. These OCD patients can find out by the facts like washing, cleaning, checking and repeating. Actually 14 to 16th century in Europe some people have experienced that sexual or other thoughts were by devil then the journey start. 1910, Sigmund Freud said that obsessions and compulsive behaviors are symptoms of OCD. The American psychiatric association said that the females are more affected than the men. The OCD is a common, chronic (long lasting disorder) the people with OCD can feel the temporary relief from the anxiety if the person can untreated then they cause the more stress and the effects seen on the work, school and lead to serious effects on personal relationships. Actually obsessive compulsive disorder is a brain injury, it involves basal ganglion (E.g.: encephalitis or trauma) usually there is no neurologic precipitant. The evidence suggesting a selective and potent serotonin (5-HT) reuptake blocker drugs are successful treatment in biological basis of OCD. The drugs with the other mechanism of action have not been effective more. The neurotransmitter plays an important role in pathophysiology of obsessive compulsive disorder.

**KEYWORDS:** OCD (Obsessive compulsive disorder), Tic disorder, Down syndrome, One-track mind.

## **CASE REPORT ON BULLOUS PEMPHIGOID- A RARE SKIN DISEASE**

Thalari anil kumar<sup>1\*</sup>, DR.T.Anusha<sup>2</sup>

Annamacharya College of Pharmacy, Rajampet, 516126.

\*Corresponding Author E-mail address: [thalarianil999@gmail.com](mailto:thalarianil999@gmail.com)

### **ABSTRACT**

Bullous pemphigoid (BP) is a rare, autoimmune, chronic skin disorder characterized by fluid blistering, urticarial lesions (hives) and itching. Less commonly these blisters are seen in the mucous membranes including the eyes, oral mucosa, esophagus and genital mucosa. The symptom of Bullous pemphigoid includes redness and itching of the skin. Within weeks to months they convert into thin-walled, tense blisters with clear fluid centers (bullae) which will appear on the arms and legs in the armpits (axillae), on the abdomen, and/or in the skin folds of the groin. Those blisters are usually tense (tight), and contain clear or blood-tinged fluid and they do not rupture easily with gentle contact. If the blisters get ruptured, pain may occur but healing is usually rapid and resolves without leaving scars. The involvement of mucous membrane is less commonly seen. Both males and females are equally affected with bullous pemphigoid. It is most commonly seen in elder age group and it is rare in children and adolescents. If blisters develop, bullous pemphigoid has to be differentiated from pemphigus vulgaris, a blistering disorder with a worse prognosis. If bullous pemphigoid is suspected, skin biopsy is done for histology and direct immunofluorescence testing. Direct immunofluorescence shows linear IgG and complement deposits the basement membrane zone (dermal-epidermal junction). Indirect immunofluorescence shows circulating IgG deposits on the epidermal side of a salt-split preparation of normal (test substrate) skin. In this case report, we highlighted the treatment options for Bullous pemphigoid.

**KEYWORDS:** Bullous Pemphigoid(BP), Fluid Blisters, Immunofluorescence, Skin Disease.

## **RISPERIDONE VERSUS QUETIAPINE: RISK OF DEVELOPING METABOLIC DISORDERS IN PSYCHIATRIC PATIENTS: A RANDOMISED CONTROL TRIAL**

Shaik Yasmeen\*, Shaik Yaseen Vamaliya, Dr. Shaik Kareemulla

Department of pharmacy practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh.

\*Corresponding Author E-mail address: [yasmeenshaik691@gmail.com](mailto:yasmeenshaik691@gmail.com)

### **ABSTRACT**

Second generation atypical antipsychotics (SGAAPs) have been used as first-line drugs in psychiatric practice for a wide range of psychotic disorders. These drugs effectively exert therapeutic effects of positive symptoms, negative symptoms, and cognitive impairments. The increasing application of SGAAPs has raised questions on their tolerability and adverse effects like weight gain, metabolic disorders. The aim of our research project is to compare the risk of metabolic disorders associated with the usage of drugs (Risperidone versus Quetiapine) in psychiatric patients. Our study objective is to assess prognosis reports, compare FBS, BMI, lipid profile and counsel psychiatric patients by providing patient information leaflets. This is a hospital based prospective observational randomized control trial was conducted for a period of 6 months at Government General Hospital (RIMS), Kadapa. 50 patients (25 patients prescribed with Risperidone & 25 patients prescribed with Quetiapine) were recruited. In a total of 50 patients, it was found that 15 patients were males and 35 patients were females. Maximum number of patients (i.e., 17 patients) belonged to 36-50 years age group. Majority of patients (i.e., 20 patients) receiving SGAAPs suffered from schizophrenia. During 6 months study, 3 follow ups were done, with time duration of 30 days. The mean value of BMI was 23.46 for Risperidone patients & 22.01 for Quetiapine patients. The mean value of FBS was 90.52 for Risperidone patients & 89.40 for Quetiapine patients. The mean value of total cholesterol was 157.04 for Risperidone patients & 150.32 for Quetiapine patients. The mean value of triglycerides was 123.72 for Risperidone patients & 118.76 for Quetiapine patients. On assessing the above results, we have concluded that Risperidone has increased risk of developing metabolic disorders when compared to Quetiapine.

**KEY WORDS:** Psychiatric diseases, antipsychotics, metabolic syndromes, RCT trial.

## **KETO DIET**

V. Vyshnavi\*, Poojitha, Hepsi

Nirmala College of Pharmacy, Kadapa.

\*Corresponding Author E-mail address: [sreepharma45@gmail.com](mailto:sreepharma45@gmail.com)

### **ABSTRACT**

Keto diet is a low carbohydrate and high fat diet which helps to lose weight and to improve Health. Mostly used to treat diseases like Epilepsy, Alzheimer's, Diabetes, Obesity and Cancer. The diet was created in 1924 as a treatment for Epilepsy, but the effect of this eating pattern also being studied for Type II diabetes. **Benefits** : Effortless weight loss, reduction in appetite, lowered blood pressure, improvement in mood, lowered triglycerides, inflammation reduction, improved sleep, clear thoughts, ability to eat more without gaining weight, reduction in gas and bloating, reduced blood sugar and craving.

**Conclusion:** The ketogenic diet is an efficacious and relatively safe treatment intractable seizures. Investigations of the diet are providing new insight in to the mechanisms behind seizures and epilepsy itself as well as possible new therapies.

## **URINARY TRACT INFECTIONS AMONG PREGNANT WOMEN: IT'S IMPACT ON FETAL AND MATERNAL HEALTH**

M. Ramani<sup>1\*</sup>, Dr. Shaik Kareemulla<sup>2</sup>, Dr. S. Padmakar<sup>2</sup>

<sup>1\*</sup> Pharm D 3<sup>rd</sup> year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003

<sup>2</sup> Assistant professors, Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003

\*Corresponding Author E-mail address: [mramani222@gmail.com](mailto:mramani222@gmail.com)

### **ABSTRACT:**

Urinary tract infections are common conditions seen in pregnant women due to structural changes, physiological changes in urethra. Distended pregnant belly contributes to improper hygiene conditions which may lead to increased growth of microorganisms. In general, pregnant women are considered as immune compromised urinary tract infection host. Microorganisms may affect the foetus and mother in many ways. *E.coli* is the underlying cause of ASB in 77% of sexually active young American women, 72% of girls of school age and 65–84% of pregnant women. Bacteriuria in pregnancy without antibiotic treatment could result in complications. The baby born to the pregnant women suffering from urinary tract infection may experience complications like acute respiratory distress, low birth weight, prematurity and mental retardation. Pregnant women may experience complications like pre-eclampsia, adult respiratory distress syndrome, pyelonephritis, renal failure and preterm birth. The common clinical manifestations of urinary tract infection in pregnancy are asymptomatic bacteriuria, acute cystitis and acute pyelonephritis. Acute pyelonephritis can lead to maternal sepsis. In India, the prevalence of urinary tract infection including both asymptomatic bacteriuria and symptomatic infection in pregnant women is reported to range from 3% to 24% which is high. Therefore, screening for early diagnosis and treatment of bacteriuria in women during pregnancy is necessary to prevent its complications so as to provide better maternal and foetal health. Since women and mothers' health is the foundation of the family, making better management decisions for preventing UTI's in pregnant women is highly recommended.

**KEY WORDS:** Urinary tract infections, E. coli, pregnancy, complications, respiratory distress.

## **THE STUDY ON EFFECT OF PATIENT COUNSELLING AND ASSESMENT OF IT'S RISKFACTORS, ETIOLOGY BY IMPROVED QUALITY OF LIFE IN UROLITHIASIS PATIENTS**

S. Bhanu Prakash\*<sup>1</sup>, D. Akhil Sai Teja<sup>2</sup>, S. Nikhil Varma<sup>3</sup>

Corresponding author: S. Bhanu Prakash, Pharm.D III year, Nirmala College of pharmacy, Kadapa.

\*Corresponding Author E-mail address: [bhanuprakash8038@gmail.com](mailto:bhanuprakash8038@gmail.com)

### **ABSTRACT**

Urolithiasis is one of the most common diseases, with approximately 750000 cases per year in India. It is showing an increased prevalence and incidence worldwide that appears even more pronounced in industrialized countries. **AIM:** The aim of the study was to assess the risk factors, etiology and effect of patient counseling by improved QOL in urolithiasis patients. **METHOD:** The study was performed in patients with urolithiasis in a tertiary care hospital. 80 patients (male 51, female 29) completed the SF-36 Questionnaire, KAP to assess Kidney Stone Disease – related knowledge, paired t test. The subjects were divided into two groups as control and intervention groups and have compared the QOL between two groups to find the impact of patient counseling in urolithiasis patients. **RESULTS:** From our study it was observed that among 5 types of stones, calcium oxalate & uric acid stones were more found in two groups of subjects. Comparison between QOL on both control and intervention groups of calcium oxalates and uric acid stones had revealed that pvalue-1.000(control), pvalue-0.0001(intervention) i.e., stastically significant. **CONCLUSION:** The results had showed that patients with urinary calculi have relatively poor QOL pertaining to physical health components, but less impact was seen on the patient's mental health. The QOL is negatively affected by increasing level of pain, age, gender and social habits. Thus, the present study suggests that the perception and the PCS and MCS are improved in urinary calculi patients after counseling.

**KEYWORDS:** Urolithiasis, QOL-Quality of life, SF-36, KAP

## **TRADITIONAL BINDI TO COMBAT IODINE DEFICIENCY: A CAMPAIGN BY GREY SINGAPORE**

**K. Charitha<sup>1\*</sup>, S. Rahath Fathima<sup>2</sup>, Dr. Shaik Kareemulla<sup>2</sup>**

<sup>1</sup>Pharm D 3<sup>rd</sup> year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003

<sup>2</sup>Assistant professors, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003

\*Corresponding Author E-mail address: [kundagavinicharitha1101@gmail.com](mailto:kundagavinicharitha1101@gmail.com)

### **ABSTRACT**

Iodine is a crucial element to be supplied through diet needed for making thyroid hormones, proper bone and brain development during pregnancy and infancy. Its deficiency is a world-wide problem since it is identified as the leading cause of preventable brain damage in new born and infants due to inadequate intake. Accordingly, the brilliant idea by Ali Shabazz, chief creative officer of Grey Singapore, transformed traditional bindi. Hindu women wear on their forehead to signify the third eye of intuition a life saving dot. It is impregnated with 150-200mcg of iodine solution with an adhesive base that deliver optimum iodine required in a day through subdermal route. Bindi should be worn for up to 8 hrs in a day to be effective. The President of Neelavasant medical foundation and research centre which partnered with Grey Singapore to distribute the bindis in Nashik. Initial tests have been positive for approximately 150 women who have been given the bindis to wear. None have reported negative side effects. Many women have reported decrease in headache which is a common side effect of iodine deficiency. Sometime in 2016, rural Indian women can go to their corner shop choose an infused bindi and fight iodine deficiency without a second thought. Lifesaving dot has been distributed through medical camps across rural India. In a nation of over 500 million women, bindis were no longer just a symbol of beauty, but now it spells the difference between life and death. More-over they are looking at bringing in more partners and setting up marketing and distribution networks. This network will have to unprecedented reach to get to supply Jeevan bindi on a regular basis to women who cannot get any iodised salt.

**KEYWORDS:** Bindi, Lifesaving dot, Pregnancy, Beauty, Forehead symbol



## **ASSESSMENT OF SURGICAL STRESS RESPONSE AND PREDICTING ITS FUNCTIONAL IMPLICATIONS**

D.V.N. Padmini 1\*, M. Jeevana Sravanthi, V. Siva Ranjani, S. K. Kashif Zia, Sreeram Vandavasi Guru and  
P. Gowtham Reddy

Department of Pharmacy Practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa - 516003,  
Andhra Pradesh, India

\*Corresponding Author E-mail address: [dvnp2022@gmail.com](mailto:dvnp2022@gmail.com)

### **ABSTRACT**

**INTRODUCTION** Surgery alters the homeostatic balance and defence mechanisms in body eliciting certain responses called as stress response. In addition certain peri-operative factors may also influence the degree of stress response reflecting surgical recovery. **AIMS AND OBJECTIVES** The present study is an attempt to assess surgical stress response and to determine the influence of peri-operative factors on it. This study investigates the effects of surgery on early non specific immune and endocrine responses. **METHODOLOGY** 100 subjects undergoing minor and major elective surgeries were studied. Blood samples were collected before, immediately after and 72 h after the surgery. Total WBC count, differential neutrophil count, random blood sugar and pulse rate were assessed. Pain (Allina scale) and Depression Anxiety Stress scale (DAS) were used for evaluating the relation to stress response. In addition we used Estimation of Physiological Ability and Surgical Stress (EPASS) scoring system for predicting the risk of post-operative complications by quantifying patients reserve and degree of surgical stress. **RESULTS** In minor surgeries, there was no significant drop in total counts after surgery, whereas in major surgery total count was decreased. In both the surgeries, the percentage of neutrophil count increased immediately after surgery but later dropped to less than preoperative count after 72 h and blood sugar levels were also found to be elevated in early post-operative period. **CONCLUSION** We observed a great relation between the pain and psychological stress to surgical recovery. Thus we suggest considering peri-operative management as a clinical significance to improve patient safety and care.

**KEYWORDS:** Surgery, Stress response, E-PASS, Peri-operative factors.

## **ROLE OF IMMUNOSUPPRESSIVE AGENTS AND ITS INTERACTIONS WITH ANTIMICROBIALS**

**M.Himabindu<sup>1\*</sup>, S. Rahath Fathima<sup>2</sup>,**

<sup>1</sup> Pharm-D 3<sup>rd</sup> Year, P.Rami Reddy Memorial College Of Pharmacy, Utukur, Kadapa, A.P.

<sup>2</sup> Assistant Professor, Department of Pharmaceutics, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa, AP.

\*Corresponding Author E-mail address: [majjarihimabindu100699@gmail.com](mailto:majjarihimabindu100699@gmail.com)

### **ABSTRACT**

Advances in immunosuppressants over the past decade have resulted in dramatic improvements in short and long term outcomes in organ transplantation as well as a decreased incidence of acute rejection. Several of the new immunosuppressive agents that are used to treat transplant rejections possess in-vitro activity against specific pathogens and also enhance the activity of antimicrobial agents or have unique drug interactions with antimicrobial agents. The immunophilins are proteins which are capable of influencing the immune response in combination with immunosuppressive drugs like Cyclosporin, Tacrolimus, Sirolimus and Mycophenolate mofetil. Tacrolimus is a fungal product acts by inhibiting calcineurin used particularly in the liver and kidney transplantations. These drug mainly metabolised by the cytochrome p-450 3A system, interacts with antimicrobials that alters the level of tacrolimus in blood stream may leads to serious adverse effects in organ transplant patients. Similarly, sirolimus is a structural analogue of tacrolimus mainly used to prevent transplant rejection reactions. Rapamycin (Sirolimus) is a substrate for cytochrome p-450 3A4 enzyme. Inhibitors of cyp 3A4 enzyme may decrease the metabolism and result in an increase in blood levels of rapamycin whereas inducers of this isoenzyme may increase metabolism resulting in a decrease in rapamycin levels. Mycophenolate mofetil is an ester pro-drug which is rapidly converted to the active metabolite mycophenolic acid. Mycophenolic acid acts as a selective and reversible inhibitor of the enzyme, inosine monophosphate dehydrogenase a key enzyme in the denovo pathway for purine biosynthesis. This mycophenolic acid has been reduced by aluminium and magnesium hydroxide containing antacids and cholestyramine leads to serious adverse effects like bone marrow impairment.

**KEY WORDS:** Immunosuppressive agents, antimicrobials, Tacrolimus, Sirolimus, Mycophenolate mofetil.

**SIGNIFICANT ENDOWMENT OF CLINICAL PHARMACIST IN  
HEMOLYTIC UREMIC SYNDROME INDUCED BY ARSENIC: A RARE  
CASE REPORT**

A. Sreeja\*<sup>1</sup> S. Anusha<sup>1</sup>, Dr. Shaik Kareemulla<sup>2</sup>

<sup>1</sup> Pharm D 3rd year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003

\*Corresponding Author E-mail address: [sreejamahi2@gmail.com](mailto:sreejamahi2@gmail.com)

**ABSTRACT**

Arsenic is a heavy metal which is a natural component of the earth's crust. Arsenic poisoning is a medical condition caused by elevated levels of Arsenic in the body. The dominant basis of Arsenic poisoning is from ground water that naturally contains high concentrations of arsenic. Poisoning can occur by ingestion, inhalation and dermal absorption. Elemental arsenic is the least toxic. Trivalent arsenic is well absorbed through the skin and is 60 times more toxic than pentavalent arsenic. Arsenic compounds have been used as medicines, widely used to treat syphilis until mid-20<sup>th</sup> century. Arsenic exposure is usually occupational or environmental result to deliberate poisoning. Symptoms usually start within 30 minutes to 2 hours after the exposure. Acute arsenic ingestion leads to severe gastroenteritis, garlic odour and hypersalivation. The organs of the body that are usually affected by arsenic poisoning are lungs, skin, kidneys and liver. The final result of arsenic poisoning is coma to death. Purpura or small areas of bleeding in the skin may be seen as the patient experience from thrombocytopenia.

**KEYWORDS:** chelation therapy, diaphoresis, perineal edema, tin's oxidant, plating techniques.

## **PRESCRIBING PATTERN ANALYSIS OF DRUGS IN THE PATIENTS WITH GASTROINTESTINAL DISORDERS AT A TERTIARY CARE HOSPITAL**

*\*Patan Ahamed Ali Khan, S.P. Abdul Younus, G.L.Satish, Dr.A.Muralidhar*

*Patan Ahamed Ali Khan, Pharm-D Intern Srinivasa Institute of Pharmaceutical Sciences*

*Proddatur – 516361*

*\*Corresponding Author E-mail address: [ahmedali454@gmail.com](mailto:ahmedali454@gmail.com)*

### **ABSTRACT**

Gastrointestinal disorders are those which occur anywhere in the Gastrointestinal tract and these include the conditions such as Irritable bowel syndrome, Perianal abscesses, Hemorrhoids, Anal fissures, Constipation, anal Fistulas, Perianal infections, along with Diverticular diseases, Colitis, Colon polyps, and Cancer. Many of these can be prevented or minimized by maintaining a healthy lifestyle, practicing good bowel habits, and submitting to cancer screening. **Aim & Objective:** The aim of this study is to analyze the prescribing patterns in the patients suffering from gastrointestinal disorders prescribed by the doctors to treat these patients at a tertiary care teaching hospital. **Material & Methods:** Subjects having gastrointestinal disorders attending the In-patient department during August 2018- January 2019 were studied. Their case sheets have been studied for the prescribing patterns prescribed by the doctors. **Results:** Out of 120 patient samples, overall the patients have faced improvement in their medical condition by the therapy prescribed by the doctors. The general prescription included symptomatic treatment along with some Antibiotics. **Conclusion:** We found no permanent cure was available as most of the cases were recurrent. The better recovery is seen in patients undergoing treatment in the in-patient ward. The regular medication adherence is made possible by the admission of patients to this ward. From the study results, we found that effective therapy must contain either Antibiotic or Anti-protozoal along with Anti-ulcerative, Anti-emetic, Antacids and such symptomatic therapy in most of the cases.

**KEYWORDS:** Gastro-Intestinal Disorders, Medication Adherence, Antibiotics, vaccines, Immunity, chemotherapeutics, sipuleucel-T.

## **PREVENTABLE ERRORS IN INSULIN USE**

**S. Suvedha<sup>1\*</sup>, C.S Harshitha<sup>1</sup>, G. Vaneeswari<sup>1</sup>, Dr. Shaik Kashif Zia<sup>2</sup>**

<sup>1</sup> II<sup>nd</sup> year, Jagan's college of pharmacy, Nellore, Andhra Pradesh, India.

<sup>2</sup> Assistant Professor, Jagan's college of Pharmacy, Nellore, Andhra Pradesh, India.

\*Corresponding Author E-mail address: [suvedhasuvedha6193@gmail.com](mailto:suvedhasuvedha6193@gmail.com)

### **ABSTRACT**

The serious consequences of insulin-related medication errors are overdose, resulting in severe hypoglycaemia, causing seizures, coma and even death; or under dose, resulting in hyperglycaemia and sometimes ketoacidosis. Errors associated with the preparation and administration of insulin often reported, both outside and inside the hospital setting. These errors are preventable. By analysing reports from organisations devoted to medication error prevention and from poison control centres, as well as a few studies and detailed case reports of medication errors, various types of error associated with insulin have been identified, especially in the hospital setting. Errors involving insulin can occur at each step of the medication-use process: prescribing, data entry, preparation, dispensing and administration. When prescribing insulin, wrong-dose errors have been caused by the use of abbreviations, especially "U" instead of the word "units" ("U" is read as a zero), or by failing to write the drug's name correctly or in full. In electronic prescribing, the sheer number of insulin products is a source of confusion and, ultimately, wrong-dose errors, and overdose. When preparing and dispensing insulin, a tuberculin syringe is sometimes used instead of an insulin syringe, leading to overdose. Other errors arise from confusion created by similar packaging, between different insulin products or between insulin and other drugs, such as heparin. **Conclusion:** In practice, many of these errors can be prevented by involving patients in the details of their treatment, by making use of their experience in managing their diabetes, and by implementing certain preventive measures.

**KEYWORDS:** Insulin, Hypoglycaemia, Hyperglycaemia.

## **NOVEL AGENT BOOSTS ADJUVANT THERAPY FOR HIGH RISK BREAST CANCER**

C.S. HARSHITHA\*

Pharm-D 2nd Year

Jagans College of Pharmacy

\*Corresponding Author E-mail address: [mailto:harshusati06@gmail.com](mailto:mailto:harshusati06@gmail.com)

### **ABSTRACT**

Breast cancer is one of the leading cause of death in the women world-wide. In India the breast cancer incidence grows exponentially every year especially in urban centres. Breast cancer represents a global health concern due to the lack of effective therapeutic regimens that could be applied to all disease irrespective of ethnic groups. Nowadays, treatment strategies based on Pharmacogenomics can minimize toxicity while maximizing drug efficacy. Advances in molecular biology revealed that breast cancer was characterized by inter and intra tumoral heterogeneity and it was multifaceted disease. Recent times molecular classifications based on the expression of tumour biomarkers have led to various novel treatment strategies which improved survival rates of patients. Besides, genetic profiling of tumours Pharmacogenetics can also aids in choosing effective drug regimens. This review will focus on advantages and limitations of current drug regimens with respect to Pharmacogenomics in response and resistance to pharmacotherapy of breast cancer.

**KEYWORDS:** breast cancer, personalized medicine, Pharmacogenomics

## **EVALUATION OF RISK FACTORS AND IMPACT OF PATIENT COUNSELLING ON QUALITY OF LIFE IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE**

A. Rohini<sup>\*1</sup>, Dr. Purushothama Reddy K<sup>2</sup>

<sup>1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [rohinirohini403@gmail.com](mailto:rohinirohini403@gmail.com)

### **ABSTRACT**

Chronic obstructive pulmonary disease (COPD) has been a major public health problem during the 20<sup>th</sup> century and will remain a challenge for the foreseeable future. The main aim of our study was to assess the Incidence, prevalence, risk factors, treatment outcomes and impact of Patient counselling on QOL in the COPD patients. A prospective observational and interventional study was conducted at Pulmonology department of St. Joseph Hospitals, Nellore, 6 months. Out of 120, most of them 94 (78.33 %) having both smoking and drinking alcohol habits, 82 (68.33 %) have smoking and 42 (51.2 %) are from >15 years smoking history. 45 (37 %) in Gold stage III severity, 43 (35.25%) were treated with 3 - drug regimen. We used SF12 instrument to assess the QOL of the patients and it was found to be significant (0.0014). The incidence rate of our study is 0.411 % and Prevalence rate was found to be 14.80 %. To prevent exacerbations patient education and smoking cessation programs as well as patient-tailored pharmacological and non-pharmacological treatments are mandatory. Most patient's knowledge about disease, preventive measures and risk factors improved after counseling whereas improvement in their QOL was observed significantly, with change in their disease severity.

**KEYWORDS:** Chronic obstructive pulmonary disease (COPD), Quality of Life (QOL), Patient counselling, COPD Exacerbations.

## **A STUDY ON CAUSES AND COMPLICATIONS OF CHRONIC KIDNEY DISEASE PATIENTS ON HEMODIALYSIS**

**A. Sudarsana**<sup>\*1</sup>, Dr. Purushothama Reddy K<sup>2</sup>

<sup>\*1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Rao's College of Pharmacy, Nellore, A P – 524002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524320.

\*Corresponding Author E-mail address: [sudarsanaamavarapu23@gmail.com](mailto:sudarsanaamavarapu23@gmail.com)

### **ABSTRACT**

Identification of causes and complications of Chronic Kidney Disease (CKD) in patients on Hemodialysis (HD) is essential for improving the quality of patient's life. Prevention and early detection of symptoms can enhance the provision of effective care. **AIM:** The aim of the present study was to examine causes and complications of Chronic Kidney Disease in patients on dialysis. **METHOD & MATERIAL:** The study population consisted of all prevalent patients on hemodialysis. Causes of morbidity and hospitalizations were examined for all dialysis patients with at least 1 admission in the dialysis ward. Mortality was examined for a period of 12 months. An overall of 123 patients with diagnosed renal failure were studied. The data were collected through the patient's medical records. Statistical analysis was performed by the use of the (SPSS) v.17.0. **RESULTS:** Out of the 123 patients with End Stage Renal Disease (ESRD) who participated in the study, 55.3% were men with a mean age of 65.3±15.2 years (range 16-85 years). The majority of patients (62.6%) were on HD, while 37.4% were on PD. The major cause which seems to be responsible for the occurrence of chronic kidney disease is diabetic kidney disease (19.5%), followed by glomerulonephritis (18.7%). The major causes of hospitalization were infections (37.9%), including bacteraemia due to central catheter infection (40.4%), peritonitis in PD patients (19.1%), gastroenteritis (12.8%), respiratory tract infections (12.8%), urinary tract infections (6.4%) and other infections (such as cholangitis, skin infections etc.,) 8.5%. Cardiac problems as a reason for hospitalization included pulmonary edema (57.1%), faint episodes, pulmonary embolism, decompensated heart failure and myocardial infarction (7.1% each). **CONCLUSION:** Major causes of hospitalization emerged in this study, catheter related infections and pulmonary edema. Measures such as the vigorous assessment of the dry weight and avoidance of central catheter infection should be needed.

**KEYWORDS:** Hemodialysis (HD), Chronic Kidney Disease (CKD), Causes of morbidity, Catheter Related Infections, Pulmonary Edema.



## **A STUDY ON CLINICAL PROFILE AND PRESCRIBING PATTERNS FOR CELLULITIS IN PATIENTS WITH FOOT ULCER AND ITS PREVALENCE IN TERTIARY CARE HOSPITAL**

Mendri Reddy Rupa\*; P. Shilpa; B. Neelima; L. Grace Mary; Dr. Raj Kumar Kudari, M. Pharm, PhD.

Department of Pharmacy practice, Srinivasa Institute of Pharmaceutical Sciences, Proddatur. 516361. YSR-Dist, A.P.

\*Corresponding Author E-mail address: [rupakrishnn@gmail.com](mailto:rupakrishnn@gmail.com)

### **ABSTRACT**

**Introduction:** Cellulitis is a bacterial infection which occurs in deeper layers of the skin. If not treated, it becomes serious and will be life-threatening when it spreads into the deeper layers of the skin. Early treatment with antibiotics is usually successful. When the condition worsens; hospitalization might be needed. It appears mostly in lower legs and is a painful condition. Streptococcus and Staphylococcus bacteria which are commonly found on surfaces of the skin cause this infection if they enter into the skin. Bacteria need a route to enter into the skin. They will enter through breaks in the skin. Until unless they enter into the skin they cannot cause any harm. **Aim & Objective:** The aim is to study the clinical profile and the prescribing patterns for cellulitis in the patients suffering from foot ulcers prescribed by the doctors to treat these patients at a tertiary care teaching hospital. **Material & Methods:** This is an observational study done by manually collecting data from the patients suffering from cellulitis, foot ulcers and both on a 55 points questionnaire form in a stretch of 6 months. Their case sheets have been studied for the prescribing patterns prescribed by the doctors. **Results:** The results showed that distribution is almost equal depending on age, sex and lifestyle habits. Early diagnosis with Narrow spectrum Antibiotics recovered fast. Deteriorated cases are few. Prevalence of cellulitis is 32.5% foot ulcer 30.83% and prevalence of cellulitis with foot ulcer is 27.02%. **Conclusion:** The study concludes that adequate rest and early diagnosis makes the condition improve to the large extent. Also, our study concludes that along with symptomatic therapy, antibiotics are a must to treat this condition.

**KEYWORDS:** Cellulitis, Foot Ulcer, Antibiotics, Prevalence.

**A STUDY ON MECONIUM ASPIRATION SYNDROME AND  
MECONIUM STAINED AMNIOTIC FLUID RISK FACTORS AND NEONATAL  
OUTCOME**

**B. Sai Phani Gayathri<sup>1\*</sup> Dr. Purushothama Reddy K<sup>2</sup>**

<sup>1</sup>Pharm. D 6<sup>th</sup>Year (Intern), Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [gayathri16.sp@gmail.com](mailto:gayathri16.sp@gmail.com)

**ABSTRACT**

Meconium aspiration syndrome (MAS) is a serious and potentially preventable condition. Hence, the present study was conducted to find out the rate of MAS, analyse associated maternal and neonatal risk factors and final outcome in babies born through MSAF in a tertiary health care facility. A hospital based prospective, observational study was carried out among 160 babies born with MSAF admitted in NICU, Department of Paediatrics, during a period of 5 months. Out of the total 160 babies born with MSAF, 68 (42.5%) were female and 92 (57.5%) were male. MAS were seen in 21 (13.12%) babies. It was observed that there is significant association between MAS & MSAF and risk factors like Post maturity (1.25%), Small for Gestational Age (SGA) (11.25%), Oligohydramnios (4.38%) and low APGAR (5.62%). The mortality observed in our study was 5 (23.80%) and the rest of the 16 MAS babies were discharged without any complications. MAS have significant effect on neonatal outcome when it is associated with risk factors like post-term gestation, SGA, Oligohydramnios, APGAR score < 7.

**KEYWORDS:** Meconium Aspiration Syndrome (MAS) Meconium-stained Amniotic Fluid (MSAF), Risk Factors Neonatal Outcome.

## **A RARE CONDITION IN TB MENINGITIS - CEREBRAL SALT WASTING SYNDROME**

Ch. Rohith Yadav<sup>\*1</sup>, Dr. Purushothama Reddy K<sup>2</sup>

<sup>\*1</sup>Pharm. D 2<sup>nd</sup> Year, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, AP – 524002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, AP – 524320.

\*Corresponding Author E-mail address: [crohithyadav2000@gmail.com](mailto:crohithyadav2000@gmail.com)

### **ABSTRACT**

TB can induce hyponatremia via several mechanisms containing local invasion to the adrenal glands (adrenal insufficiency) & hypothalamus or pituitary gland, tubercular meningitis and secretion of inappropriate antidiuretic hormone (SIADH) via pulmonary infection. When hyponatremia is associated with central nervous system (CNS) disease one would normally think of syndrome of SIADH as a possibility. The SIADH may have been a response by the ABSTRACT or pituitary to a decrease in intravascular volume resulting from the extensive pulmonary disease or associated hypoxia or the tuberculous lung may have released ADH or an ADH-like substance. Rarely tuberculous meningitis cases are with severe hyponatremia in whom SIADH was initially considered as the cause and later diagnosed as cerebral salt wasting syndrome (CSWS) based on certain clinical findings and laboratory parameters. Hyponatremia is considered as one of the most common and important electrolyte abnormalities. It must be considered in all seriously ill hospitalized patients. It is defined as depletion in the serum sodium ( $\text{Na}^+$ ) concentration to a level below 136 mmol/l and severe hyponatremia is defined as serum sodium concentration lesser than 115 mmol/l which it can be considered as life-threatening condition. The prevalence of severe hyponatremia and its non-severe form are estimated 1 – 4% and 15 – 30% of inpatients respectively.

**KEY WORDS:** Tubercular Meningitis, Hyponatremia, Secretion of Inappropriate Antidiuretic Hormone (SIADH) & Cerebral Salt Wasting Syndrome (CSWS).

**COST EFFECTIVENESS ANALYSIS OF ANTIBIOTIC REGIMENS USED IN  
OUTPATIENT TREATMENT OF EXACERBATION OF CHRONIC  
OBSTRUCTIVE PULMONARY DISEASE (COPD)**

Chowkacharla Bhavana<sup>\*1</sup>Dr. Purushothama Reddy K<sup>2</sup>

<sup>\*1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Narayana Pharmacy College, Nellore, A P – 524 002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [bhavnareddy369@gmail.com](mailto:bhavnareddy369@gmail.com)

**ABSTRACT**

Allocation of the resources in health care and finding a way how to prioritize spending within health care systems are hot issues, even in the developed countries. Introduction of new medical products and technologies is an important driver for increased health care costs. COPD is among the top 5 causes of morbidity and mortality worldwide. The aim of this study is to evaluate the cost effectiveness of antimicrobial regimens for treatment of acute exacerbation of COPD. Cost effectiveness analysis was performed based on data from 2 published observational, “real world” studies carried out in the Institute for Occupational Health of Nellore, Andhra Pradesh, India. Methodology is based on calculation of ICER in as many steps as needed until all exclusion criteria are met. All ICERs are interpreted using the cost effectiveness plane. Amoxicillin with clavulanic acid and cefuroxime dominated over other antibiotic regimens. Doxycycline, cefuroxime, cefpodoxime and moxifloxacin are cost-effective alternatives. When deciding, size of the available budget and patient's willingness to pay will be key factors. The results of this study provide data and useful information which antibiotic will give the best expected outcomes, with the least produced costs.

**KEYWORDS:** Cost effectiveness, Antibiotics, COPD, ICER.

## **A STUDY ON MANAGEMENT ASSOCIATED WITH PRETERM DELIVERIES AND THEIR OUTCOMES**

E.Kiranmai<sup>1\*</sup>, P.Tejaswini<sup>1</sup>, M VenkataSubbaiah<sup>2</sup>

<sup>1</sup> Pharm D 5<sup>th</sup> year, Department of pharmacy practice, P. Rami reddy memorial college of pharmacy, kadapa, Andhra Pradesh, India-516003

<sup>2</sup> Associate Professor, Department of pharmacy practice, P. Rami reddy memorial college of pharmacy, kadapa, Andhra Pradesh, India-516003

\*Corresponding Author E-mail address: [Kiranmai.pharmad@gmail.com](mailto:Kiranmai.pharmad@gmail.com)

### **ABSTRACT**

**BACKGROUND:** Preterm is a major obstetrical challenge of health care. Preterm means birth of a baby before 37 weeks of gestation. It is the top most cause of prenatal mortality and morbidity of neonatal deaths. The birth of these neonates is at a greater risk of developmental disabilities, health and growth problems than neonates of full term. **AIM AND OBJECTIVE:** The main aim of our study is to assess the management associated with preterm deliveries and their outcomes. **MATERIALS & METHODS:** “A prospective observational cohort studies” which took place in the department of Gynecology and Obstetrics at Government General Hospital- RIMS, Kadapa. The present study was conducted over a period of 6 months on 80 Preterm subjects, who were enrolled based on inclusion and exclusion criteria. A detailed questionnaire was used to record socio-demographic, clinical profile and prescribing management. Statistical analysis was performed by percentage method using parameters like mean, standard deviation. **RESULTS:** The impact of incidence range in the present study was 31.25%. In our study, maximum preterm deliveries were observed in the age group of 18-23 years (44%). Multifarious woman were at more risk for preterm i.e., about 51%. The treatment prescribed for preterm was betamethasone, tidilon, magnesium sulphate, progesterone. The commonest neonatal outcome was found to be low birth weight with KMC and supplements of vitamins, iron, and calcium as a therapy for their better recovery. **CONCLUSION:** The study suggests an urgent need for strengthening effective guidelines and appropriate counselling for prevention of preterm. Maintenance of good hygiene, adequate bed rest and proper antenatal care visits for the better outcomes.

**KEY WORDS:** preterm, neonatal outcomes, antenatal care, cohort.

## **A PROSPECTIVE OBSERVATIONAL STUDY ON THE OUTCOME OF TUBERCULOSIS TREATMENT IN A TERTIARY CARE HOSPITAL**

Gayathri Ulchala<sup>1\*</sup>, S.S.Somanathan<sup>2</sup>, Lokesh Verapalli<sup>1</sup>, Padmaja Samayam Subramanyam<sup>1</sup>, R. B. Achyuth Babu<sup>1</sup>

<sup>1</sup>Pharm D, Department of Pharmacy Practise, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupathi

<sup>2</sup>Associate Professor, Department of Pharmacology, Sri Padmavathi School of Pharmacy

\*Corresponding Author E-mail address: [gay3.ulchala@gmail.com](mailto:gay3.ulchala@gmail.com)

### **ABSTRACT**

**INTRODUCTION:** Tuberculosis (TB) remains one of the deadliest infectious diseases responsible for millions of deaths annually across the world. In developing countries the incidence of tuberculosis has been increasing steadily is the most serious infectious causes of all global mortality and morbidity.

**OBJECTIVES:** To assess the prescribed TB treatment & curative outcome of patients registered for Tuberculosis treatment. **METHODOLOGY:** A prospective observational study conducted in Tuberculosis

Unit of Pulmonology Department, Sri Venkateswara RamnarainRuia Government General Hospital, a tertiary care hospital in Tirupati, for a period of 6 months with sample size of 150. **RESULTS:** The sample size was 150 patients with male predominance of 87, age group of 41-60 years were predominant. PTB cases were 136 and EPTB were 14. The patients with DM (45%), HIV (24%), Alcohol (28%) & smoking (40%). The cases under category I & II were 100 & 50, the sputum positive, negative and not done were 127, 14, 9 respectively. The sputum score was 1 in 16, 2 in 53, and 3 in 58. Treatment success rate was 81%, treatment failure was 3%, defaulter, transferred out and mortality rate was found to be 6%, 4% and 6% respectively. **CONCLUSION:** Despite of success rate we still observe considerable rate of treatment failure due to resistance, non-compliance to treatment and lack of awareness in the patients about importance of TB treatment. Further efforts should be made by responsible bodies to include clinical pharmacists to improve success rate of TB treatment, as clinical pharmacist play a key role in educating the patients.

**KEYWORDS:** Tuberculosis, Treatment outcome, Curative rate

## **A STUDY ON ASSESSMENT OF HEALTH-RELATED QUALITY OF LIFE IN ASTHMA AND COPD PATIENTS**

**M. S. Bharath Kumar<sup>\*1</sup>, Dr. Purushothama Reddy K<sup>2</sup>**

<sup>1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524002

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524320.

\*Corresponding Author E-mail address: [msbharathk@gmail.com](mailto:msbharathk@gmail.com)

### **ABSTRACT**

**BACKGOURND:** Health-related quality of life (HRQL) and preference-based HRQL instruments (utility instruments) are increasingly used in clinical studies. Although their use is established in many fields, such as oncology and gastrointestinal disease, questionnaires are rarely used as primary endpoints in randomised clinical studies of respiratory disease. One possible reason may be the lack of information about the patients' deterioration in HRQL when the disease progresses. **AIM:** To evaluate the association between HRQL and disease severity using both disease specific and generic specific questionnaires and lung function measures. **METHODS:** A survey was performed in patients with COPD and Asthma in tertiary care teaching hospital. 120 subjects (92 men and 28 women, mean age 48.6 years) completed the generic HRQL questionnaire; SF-36 and disease-specific HRQL questionnaire; the St George's Respiratory Questionnaire (SGRQ). The subjects were divided into 4 severity groups according to FEV<sub>1</sub>% of predicted normal using GOLD and BTS guidelines. **RESULTS:** From our study it was observed that the mean scores of SF-36 PCS is 40.46, p<0.0001 and MCS is 40.22, p<0.0001 which showed an average HRQL and was significantly associated with COPD and Asthma. The COPD severity grades affected the SGRQ Total scores, varying from 67.8 - 22.9 (GOLD p<0.0001) and from 64.1 - 22.9 (BTS p<0.0001). The 4 stages of FVC% predicted had an impact on HRQL similar to the stages of FEV<sub>1</sub>% predicted outlined from GOLD and BTS. Strong negative correlation (-0.645, p<0.0001) was observed between SF-36 and SGRQ total scores, strong negative correlation (-0.847, p<0.0001) between SGRQ total scores and FEV<sub>1</sub>%/FVC% predicted in contrast with positive correlation (0.583, p<0.0001) with SF-36 and FEV<sub>1</sub>%/FVC% predicted. **CONCLUSION:** HRQL in COPD deteriorates with disease severity and age. The level of HRQL of COPD and Asthma subjects deteriorate considerably with increase in the severity of disease and such deterioration showed linear relation to the decrease in the FEV<sub>1</sub> % predicted normal values.

**KEY WORDS:** COPD, HRQL, SF-36, SGRQ, PCS and MCS.

***P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY, KADAPA, A.P.***

## **EVALUATION OF DRUG - FOOD INTERACTIONS IN HOSPITALIZED PATIENTS**

M.Vasim Akram<sup>\*1</sup>, Dr. Purushothama Reddy K<sup>2</sup>

<sup>1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 002

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320

\*Corresponding Author E-mail address: [mohammad.vasi143@gmail.com](mailto:mohammad.vasi143@gmail.com)

### **ABSTRACT**

Medications, both prescribed and over-the-counter, are used every day to treat acute and chronic illness and also to help people live healthy life for a prolonged period. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has created standards for health care professionals to improve in omission of drug food interactions. A prospective observational study was conducted for 6 months (August 2018 to January 2019) at St. Joseph Hospitals, Nellore. Out of 200 patients mixed type of diet pattern is observed in 71 % of patients. Moreover patients with less Nutritional status (Malnourished) patients may have the possible Drug and Food Interactions (DFI's), where the availability of nutrients are less in these patients which may lead to increase in side effects. In this case these patients can't tolerate to the prescribed drug and it may changes its effect. It is very important for pharmacists to monitor the potential DFI's and counsel patients regarding food and beverages to avoid when taking such medications. In order to avoid such interaction we suggested the patients to tell their physician (or) pharmacist about the food they consume during the drug therapy.

**KEYWORDS:** Hospitalized Patients, Drug-Food Interactions (DFIs), Patient counselling.



**MEDICATION ERRORS IN OUTPATIENT GENERAL MEDICINE  
DEPARTMENT AT A TERTIARY CARE HOSPITAL-A CROSS SECTIONAL  
STUDY**

Reddy Mahesh Narayana<sup>\*</sup>, T.S.Durga Prasad,

Department of Pharmacy Practise, Sri Padmavathi School of Pharmacy, Tirupathi

\*Corresponding Author E-mail address: [redzymaheshnarayana@gmail.com](mailto:redzymaheshnarayana@gmail.com)

**ABSTRACT**

**Introduction:** Medication errors can cause serious adverse effects & potentially to evoke the fatal risk of the disease. Monitoring the safety and efficacy of the drug adequately can prevent the occurrence of errors.

**Objectives:** The main aim of this study is to identify and resolve the prescribing and dispensing errors among the Outpatient General Medicine department and to assess the severity of the occurred medication errors. **Method:** A cross sectional study was carried out at the General Medicine Out-patient Department. The patients who satisfied inclusion and exclusion criteria were enrolled after obtaining their consent. The required data was collected from patient's prescriptions for identification of medication errors and the severity can be assessed by using NCC MERP guidelines.

**Results:** During this study period we found that 303 out of 544 prescriptions with medication errors. Out of which 834 errors were identified like prescribing errors 712(85) and 122(15) were dispensing errors. The most common type of medication error was prescribing error was due to absence of strength (35.92), wrong drug (80). The most common type of dispensing error was required quantity not supplied (55.74), dispensing wrong drug (32.78). **Conclusion:** Occurrence of medication errors were common in Outpatient General Medicine Department in this tertiary care hospital. A clinical pharmacist can play a major role in this situation appears to be a strong intervention in early detection and prevention of medication errors and thus can improve the quality of care to the patients. Educating the patients about the drugs and their importance of right use, helpful in minimizing errors.

**KEY WORDS:** Interventions, medication errors, prescribing errors, dispensing errors, severity of error, clinical pharmacist

## **A PROSPECTIVE DRUG UTILIZATION STUDY ON ANTI EPILEPTICS AT A TERTIARY CARE HOSPITAL**

Manohar Reddy Yv<sup>1\*</sup>, Durga Prasad Ts<sup>2</sup>, Lijitha S<sup>1</sup>, Vanitha M<sup>1</sup>,

<sup>1</sup>Pharm D Intern, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor,  
Tirupati, Andhra Pradesh, India

<sup>2</sup>Associate Professor, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor,  
Tirupati, Andhra Pradesh, India

\*Corresponding Author E-mail address: [yvmanohar12@gmail.com](mailto:yvmanohar12@gmail.com)

### **ABSTRACT**

Anti-epileptic drugs (AEDs) are the primary therapeutic models for epileptic patients and have been demonstrated to control seizures, which decreases the morbidity and mortality associated with epilepsy. Many AEDs have become available for the management of epilepsy, many of these agents are now utilized for conditions other than epilepsy. This study was aimed in assessing the prescribing patterns of anti-epileptics in various diseases (both epilepsy and Non epilepsy), utilization pattern of AEDs as monotherapy/ polytherapy, to monitor and report different Adverse Drug Reactions (ADRs) with these AEDs. A prospective observational study was conducted among 250 AED used individuals. The collected data was analysed for AEDs utilisation patterns, ADRs associated with these AEDs, Naranjo's assessment scale was used to check the severity of ADRs and Central Drug Standard Control Organisation (CDSCO) form is used to report the identified ADRs to Pharmacovigilance Programme of India (PVPI). Out of 250 patients, seizures were most commonly observed diagnosis in males 178 (71.2%). Majority of patients 47 (18.8%) were in the range of 31-40 years of age group. Highest number of patients was from psychiatry 97 (38.8%). Seizures were commonly diagnosed followed by alcohol dependent syndrome. Commonly prescribed AED was Phenytoin in 92 (27.87%) patients and gum hyperplasia was most commonly observed ADR with Phenytoin. Phenytoin was most frequently prescribed AED followed by sodium valproate. As Phenytoin is enzyme inducing drug and will show nonlinear pharmacokinetics, therapeutic drug monitoring is essential.

**KEYWORDS:** Epilepsy, Antiepileptic drugs, Drug utilization, adverse drug reaction.

## **SPECTRUM OF INTRADIALYTIC COMPLICATIONS DURING HEMODIALYSIS AND ITS MANAGEMENT: A SINGLE-CENTER EXPERIENCE**

N. Anuja<sup>1\*</sup>, Dr. Purushothama Reddy K<sup>2</sup>

<sup>1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [anujanikkudala@gmail.com](mailto:anujanikkudala@gmail.com)

### **ABSTRACT**

A retrospective study was performed to evaluate the various intra-dialytic complications that occur during HD, during the period of July to December 2018. A total of 2325 renal failure patients (790 ARF and 1535 CRF patients) were assessed for the intradialytic complications. In ARF, Hypotension seen in 1296 sessions (30.4%), nausea & vomiting seen in 1125 sessions (26.4%), fever & chills seen in 818 sessions (19.2%), headache seen in 665 sessions (15.6%), cramps seen in 85 sessions (2.0%), chest & back pain seen in 82 sessions (1.92%), hypoglycemia seen in 77 sessions (1.8%) and femoral hematoma seen in 31 sessions (0.73%). In CRF, hypotension in 2230 sessions (26.1%), nausea & vomiting in 1211 sessions (14.2%), fever & chills in 1228 sessions (14.4%), chest & back pain in 1108 cases (13.0%), hypertension in 886 sessions (10.4%), headache in 886 sessions (10.4%), cramps in 256 sessions (3.0%), hematoma in 55 sessions (0.64%), intracerebral hemorrhage in 3 sessions (0.03%) and catheter tip migration in 3 sessions (0.03%). There is a need for special attention for the diagnosis and management of intra-dialytic complications of HD because such complications could be managed successfully without the need for termination of the dialysis procedure.

**KEY WORDS:** Hemodialysis (HD), Acute Renal Failure (ARF), Chronic Renal Failure (CRF), Intra-dialytic Complications.

## **VITAMIN E ACETATE IN BRONCHOALVEOLAR-LAVAGE FLUID RELATED WITH ELECTRONIC- CIGARETTE**

**K. Syamala\*<sup>1</sup>, A. Santhi Sri<sup>2</sup>, Dr. Sai Theja Guduru\***,

<sup>1</sup>IV<sup>th</sup> year, Jagan’s college of pharmacy, Nellore, Andhra Pradesh, India.

<sup>2</sup>Intern ship, Jagan’s college of pharmacy, Nellore, Andhra Pradesh, India.

<sup>3</sup>Assistant Professor, Jagan’s college of Pharmacy, Nellore, Andhra Pradesh, India.

\*Corresponding Author E-mail address: [syamakatta153@gmail.com](mailto:syamalakatta153@gmail.com)

### **ABSTRACT**

The vaping-related condition that has sickened hundreds of people has a new name: EVALI, or e-cigarette or vaping product use-associated lung injury. The new name in newly issued guidance for clinicians from the Centers for Disease Control and Prevention is a sign of the rapidly evolving investigation into the illness, which has sickened 1,299 people across 49 states, Washington, D.C., and the U.S. Virgin Islands. The case count has continued to climb week after week. EVALI cases were first reported to the Centers for Disease Control and Prevention (CDC) in August 2019 and rapidly increased in number thereafter, which suggests new or increased exposure to one or more toxicants from the use of e-cigarette products. The initial laboratory strategy to help determine the cause of EVALI was to analyze product fluids associated with case patients to detect toxicants in these products that could account for the lung injury. In September, the New York State Department of Health Wadsworth Center Laboratory reported results for 34 persons who used THC-containing e-cigarette products and had pulmonary illness. The causative agents for the current national outbreak of electronic-cigarette, or vaping, product use-associated lung injury (EVALI) have not been established. Detection of toxicants in bronchoalveolar-lavage (BAL) fluid from patients with EVALI can provide direct information on exposure within the lung.

**KEYWORDS:** Vitamin E, Bronchoalveolar-lavage, Electronic- Cigarette

## **A STUDY ON MECONIUM-STAINED AMNIOTIC FLUID AND MECONIUM ASPIRATION SYNDROME RISK FACTORS AND THEIR OUTCOMES IN NEWBORNS**

**Sk. Simran<sup>\*1</sup>, Dr. Purushothama Reddy K<sup>2</sup>**

<sup>1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [simransweet000@gmail.com](mailto:simransweet000@gmail.com)

### **ABSTRACT**

Meconium-stained amniotic fluid (MSAF) occurs in about 7 – 22 % of live births and is regarded as a sign of foetal compromise. Hence, the present study was conducted to find out the rate of Meconium Aspiration Syndrome (MAS), analyze associated maternal and neonatal risk factors and final outcome in babies born through MSAF in a health care facility. It's a Single Center, Prospective Observational Cross Sectional Study carried out, among 211 babies born with MSAF admitted to the NICU in the Department of Pediatrics, during a period of 6 months.

A total of 2,780 live births (556 live births each month), of which only 211 (7.6 %) had MSAF. MAS developed in 40 (18.95 %). It was observed that there is significant association between MAS & MSAF and the following risk factors like Post maturity (1.25%), Small for Gestational Age (SGA) 120 (56.87 %), Oligohydramnios 31 (14.69 %) and low APGAR 9 (4.26 %). MSAF & MAS affect mostly full term and post-term babies. MAS have significant effect on neonatal outcome when it is associated with risk factors like post-term gestation, SGA, Oligohydramnios, APGAR score < 7.

**KEY WORDS:** Meconium-stained Amniotic Fluid (MSAF), Meconium Aspiration Syndrome (MAS), Risk Factors, Neonatal Outcome.

## **TACKLING OF DRUG-RESISTANT ACINETOBACTER BAUMANNII BY NOVEL MOLECULE**

Varra Sree Yochana Surya Priya\*<sup>1</sup>, A. Santhi Sri<sup>2</sup>, Dr.Sai Theja Guduru<sup>2</sup>

<sup>1</sup>IV year, Jagan’s college of pharmacy, Nellore, Andhra Pradesh, India.

<sup>2</sup> Pharm D Intern, Jagan’s college of pharmacy, Nellore, Andhra Pradesh, India.

<sup>2</sup>AssistantProfessor, Jagan’s college of Pharmacy, Nellore, Andhra Pradesh, India.

\*Corresponding Author E-mail address: [yochivarra03@gmail.com](mailto:yochivarra03@gmail.com)

### **ABSTRACT**

A novel molecule developed by conjugating glycine to a polymer has been found to possess high antibacterial activity against multidrug-resistant *Acinetobacter baumannii* while showing no toxicity to human cells. The team led by JNCASR, Bengaluru. The molecule has many other properties. The most important being its ability to kill even the dormant bacteria. At 16 mcg per ml conc, the molecule took about two hours to completely kill the actively dividing bacteria that are sensitive to drugs and two-four hours to kill drug-resistant strains of *A. baumannii*. However, at the same concentration, the molecule needed less than 2 minutes to kill the dormant, drug-sensitive bacteria, and about 5 minutes to kill the dormant, drug-resistant bacteria. “At this point in time we don’t know the reason behind the rapid killing of the dormant bacteria. *A. baumannii* bacteria are already resistant to most antibiotics. The researchers exposed the bacteria to the molecule for 14 days. “The bacteria did not develop any resistance against the molecule at the end of 14 days, while the bacteria exhibited 250-fold resistance against meropenem drug. “The bacteria developed a high level of resistance against the last resort antibiotic colistin too.”The molecule is able to destroy the integrity of the membranes thus killing even the multidrug-resistant *A. baumannii*.

**KEYWORDS:** *Acinetobacter baumannii*, multidrug-resistant

## **A PROSPECTIVE OBSERVATIONAL STUDY ON HAEMODIALYSIS COMPLICATIONS IN CHRONIC KIDNEY DISEASE PATIENTS**

V.Chandra Sekhar Naik<sup>\*1</sup>, Dr. Purushothama Reddy K<sup>2</sup>

<sup>1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [chandrasedkharnaik81@gmail.com](mailto:chandrasedkharnaik81@gmail.com)

### **ABSTRACT**

In many high-income countries the prevalence of CKD approaches 15 % of the adult population, predominantly due to diabetic and hypertensive nephropathy and poses a large medical and economic burden. A total of 72 CKD Patients were recruited under inclusion criteria, among them intra-hemodialysis complications were 52 (55.5 %) anemia, 48 (66.6 %) oedema, 48 (66.6 %) hypotension, 45 (62.5 %) were HTN, 45 (20.8 %) IV line induced pain, 45 (62.2 %) Generalize weakness, 40 (55.5 %) Shortness of breathing, 30 (41.6 %) Muscle cramps, 30 (41.6 %) backache, 25 (34.7 %). Post/Long-term HD complications are 72 (100 %) Chronic anemia, 57 (79.16 %) HD related Hepatitis B & C, 43 (59.7 %) GI effects, 26 (36.1 %) malnutrition, 19 (26.38 %) thrombocytopenia, 16 (22.2 %) Psychiatric illness, 14 (19.4 %) disequilibrium with Peripheral neuropathy, 8 (11.11%) Cardiac arrhythmia, 7(9.72%) hemorrhagic, 4 (5.5 %) dementia and 3 (4.16 %) stroke. Our finding suggests that strategies should be implemented to decrease complication rates. This study was done to highlight the Hemodialysis complications and the causes underlying behind it. Our simple study may help physicians and patients make more informed decisions for healthy longevity.

**KEYWORDS:** Renal Failure (RF), Chronic Kidney Disease (CKD), Haemodialysis Complications, Intra and post dialysis Complications.

## **SUBJECTIVELY PERCEIVED SIDE-EFFECTS OF ANTI-EPILEPTIC DRUGS IN CHRONIC REFRACTORY EPILEPSY**

Vajja Sai Sindhu<sup>\*1</sup>, Dr. Purushothama Reddy K<sup>2</sup>

<sup>\*1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Narayana Pharmacy College, Nellore, A P – 524 002.

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320

\*Corresponding Author E-mail address: [saisindhu95@gmail.com](mailto:saisindhu95@gmail.com)

### **ABSTRACT**

**Purpose:** Antiepileptic drugs (AEDs) can cause side-effects. Patient-reported side-effects due to this type of medication are very common, but thus far only investigated in community based populations. We investigated the subjectively perceived side-effects of anti-epileptic drug treatment in patients with refractory epilepsy. **Methods:** A non-selected group, of patients visiting the outpatient department between September 2017 and November 2018 was invited to complete a questionnaire only if they had experienced side-effects of their AED treatment during last year. The questionnaire, the SIDAED, assessed 4 different categories; cognition, mood, cosmetics and general health. Subgroup analyses were based on their medication use: mono- or polytherapy, older and newer AEDs and AEDs with a high or a low risk for cognitive and behavioral/mood side-effects. **Results:** In total, 203 patients or their relatives completed the questionnaire. Mean age of the patients was 37 years. Most reported complaints (85%) were about their general health followed by cognition, mood and cosmetics. Subgroup analyses showed no differences between patients using monotherapy or polytherapy. Also, no differences were found between patients using older AEDs or newer drugs. Patients using AEDs with a high risk for side-effects did complain more about their mood but not about their cognition. Regression analysis showed that using a high risk AED for behavioral side-effects contributed significantly to the total experienced side-effects. **Conclusion:** In conclusion, our study illustrates that patients are a reliable respondent to indicate side-effects despite of their refractory epilepsy. Particularly, mood complaints due to antiepileptic drugs (such as levetiracetam) are correctly noticed.

**KEYWORDS:** Antiepileptic drugs, Epilepsy, Side-effects, Mood complaints.



## **INTRA – DIALYSIS COMPLICATIONS AMONG HEMODIALYSIS PATIENTS - A CASE STUDY**

Y. Bhavishya<sup>\*1</sup>, Dr. Purushothama Reddy K<sup>2</sup>

<sup>\*1</sup>Pharm. D 6<sup>th</sup> Year (Intern), Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 002

<sup>2</sup>Professor & HOD, Department of Pharmacy Practice, Rao's College of Pharmacy, Nellore, A P – 524 320

\*Corresponding Author E-mail address: [bhavishyayeturu@gmail.com](mailto:bhavishyayeturu@gmail.com)

### **ABSTRACT**

**Back ground:** Chronic Renal Failure (CRF) is the state which results permanent progressive reduction in renal function. In the developing countries the awareness and burden of CRF on society has been high lightened during Past decade years. The risk factors such as obesity, smoking, hypertension, uncontrolled diabetes mellitus favours the progress of renal failure among the old age population.

Hemodialysis is a method that is used to achieve the extracorporeal removal of waste products such as creatinine and urea and free water from the blood when the kidneys are in a state of renal failure. The principle of Hemodialysis is the same as other methods of dialysis it involves diffusion of solutes across a semi permeable membrane. Hemodialysis utilizes counter current flow where the dialysate is flowing in the opposite direction to blood flow in the extracorporeal circuit. Counter-current flow maintains the concentration gradient across the membrane at a maximum and increases the efficiency of the dialysis. This case study survey was done to highlight the intra- dialysis complications faced during Hemodialysis procedure. The findings were analyzed and reported. The case report gives us the actual picture of dialysis complication and the causes underlying behind it.

**KEY WORDS:** Intra dialysis complications, Hypotension, Chills, Fever, Muscle cramps.

## **ASSESSMENT OF DIABETIC DISTRESS AMONG DIABETIC PATIENTS IN A TERTIARY CARE TEACHING HOSPITAL**

PonnuruThanuja\*<sup>1</sup>, Nandala Kavya<sup>1</sup>, G.Divya<sup>2</sup>

<sup>1</sup>Pharm D Intern, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor,  
Tirupati

<sup>2</sup>Assistant Professor, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor,  
Tirupati

\*Corresponding Author E-mail address: [thanujaponnuru@gmail.com](mailto:thanujaponnuru@gmail.com)

### **ABSTRACT**

**Introduction:** Diabetes distress (DD) refers to the unique, often hidden, emotional burdens and worries that a patient experience when they are managing a severe chronic disease, such as diabetes.

**Objectives:** This study mainly aims to measure the diabetes distress score and its related factors among patients with diabetes and to identify drug-drug interactions and to educate the importance of physical exercise and dietary modification. **Method:** A prospective observational study conducted in a tertiary care hospital among 250 patients; demographics, past medical history, duration of diabetes, modality of treatment was recorded. Data was collected from by using diabetic distress scale (DDS17). **Results:** Majority of patients (33.6) were under the age group of 51-60. Males (63.2) are more in number than females (36.8). Most commonly affected system was musculoskeletal system (82) followed by gastrointestinal system (50). Out of 250 prescriptions 16 drug interactions were found. Majority of patients 25.6% (172) are suffering with DM from 1-5 years. Most of the patients are suffering from emotional burden 54.6% (141).

**Conclusion:** DDS 17 is a valid and reliable tool to identify distress in patients with Diabetes. Most prevalent distress in overall population was Emotional Burden due to low adherence.

**KEY WORDS:** Diabetic distress, physician related distress, Emotional burden, Drug interactions, Medication.

## GLOBAL AND INDIAN PERSPECTIVE OF MATERIOVIGILANCE

D. Lakshman kumar\*, M. Lakshmi BhanuSree, A. Pramod Kumar

Department of Pharmacognosy, Chebrolu Hanumaiah Institute of Pharmaceutical Sciences,  
Guntur, Andhra Pradesh, India.

\*Corresponding Author E-mail address: [lakshman13@gmail.com](mailto:lakshman13@gmail.com)

### ABSTRACT

**Introduction:** The occurrence of significant adverse events related to the use of medical devices had been the most serious problem leading to the development of the Materiovigilance sector which rely on the identification, monitoring, reporting and preventive measures of adverse events due to medical devices. The Materiovigilance programme is well advanced in developed countries as compared to that in India. In this article we compared the Global perspective of materiovigilance to that of in India. **Content** The regulation of materiovigilance in developed countries such as US, UK, Canada, Australia, and Japan is well advanced and is carried out through individual regulatory agencies working as a group under a forum named International Medical Device Regulators Forum (IMDRF). This forum was formed by the countries as Global Harmonization Task Force (GHTF). These countries follow the regulations that are stated by FDA for the regulation of the medical devices and associated adverse event reporting manual. The Global perspective of the materiovigilance is well advanced system as compared to India. In India the adverse event reporting of medical devices is done through Materiovigilance programme of India (MvPI) via freely generated form from the official website of the IPC since 2015. The events are reported voluntarily by medical professionals and the data is sent to regional medical device monitoring centers. Later the data is subjected for signal generation at the National Coordination Center (NCC). **Conclusion** The materiovigilance procedure in India requires strict regulations and periodic monitoring of the medical devices safety by the manufacturer. The post marketing surveillance of adverse events need more effective monitoring by the manufacturers as that of Global regulation with advanced methods of device monitoring.

**KEYWORDS:** Materiovigilance, India, MvPI.

## **CONGENITAL INSENSITIVITY TO PAIN WITH ANHIDROSIS (CIPA): CLINICAL PRESENTATIONS & EFFECT OF NTRK1 MISSENSE MUTATIONS**

**P. Zikra Batool<sup>\*1</sup>, M. Kavya Sree<sup>1</sup>, Dr. Shaik Kareemulla<sup>2</sup>**

<sup>1</sup> Pharm D 3<sup>rd</sup> year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003

<sup>2</sup> Assistant professor, Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa, Andhra Pradesh-516003

\*Corresponding Author E-mail address: [pzikrabatool07@gmail.com](mailto:pzikrabatool07@gmail.com)

### **ABSTRACT**

Pain alters the quality of life more, than any other health related problems and is one of the implements of body protection. Congenital insensitivity to pain with anhidrosis (CIPA) is also known as Hereditary Sensory and Autonomic Neuropathy type IV (HSAN IV). It is characterized by insensitivity to pain, anhidrosis (inability to sweat) and intellectual disability. It is a less often and extremely dangerous condition. In most cases, the patient doesn't live over age of 25. The incidence of this disorder has been estimated to be 1 in 25,000 individuals. The signs and symptoms of CIPA appear early, usually at birth or during infancy. People with CIPA cannot feel visceral pain that leads to repeated injuries such as oral self-mutilation (biting of tongue, lips and buccal mucosa); biting of fingertips; bruising, scarring; multiple bone fractures (bones fail to heal properly); joint deformities; changes in temperature control and varying degree of mental retardation. It occurs due to mutations in the neurotropic tyrosine receptor kinase 1 gene (NTRK1) located in chromosome 1 that encodes with receptor for the nerve growth. Some children display hypotrichosis of scalp. The diagnosis of CIPA is confirmed by identification of biallelic pathogenic variants in NTRK1. Treatment is supportive and is best provided by specialists in pediatrics, orthopedics, dentistry, ophthalmology, and dermatology. For anhidrosis: Monitoring body temperature helps to prevent/manage hyperthermia or hypothermia. For insensitivity to pain: Modify as much as reasonable a child's activities to prevent injuries.

**KEYWORDS:** Anhidrosis, Oral self-mutilation, NTRK1, Biallelic, Hypotrichosis.

## **ASSOCIATION BETWEEN CAMPYLOBACTER JEJUNI INFECTION AND SUBSEQUENT GUILLAIN-BARRÉ SYNDROME IN CLINICAL PRACTICE SETTING**

Shaik Rahila Iram\*<sup>1</sup>, L. Nagamani<sup>1</sup>, Dr. Shaik Kareemulla<sup>2</sup>

<sup>1</sup>Pharm D 3<sup>rd</sup> year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003

<sup>2</sup>Assistant professor, Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa, Andhra Pradesh-516003

\*Corresponding Author E-mail address: [shaikrahilairam@gmail.com](mailto:shaikrahilairam@gmail.com)

### **ABSTRACT**

GBS is an autoimmune disorder where the body's immune system attacks its peripheral nervous system. It is a rare and very serious disorder affecting About 1 in every 1000 reported campylobacter illnesses leads to GBS. Several things are known to trigger GBS. Infection with Campylobacter jejuni, which causes diarrhea, is one of the most common risk factors for GBS. It is thought that, complement fixing antibodies against peripheral nerve gangliosides are recognized as an important mechanism for nerve damage. This syndrome most often damages the nerve's myelin sheath causing signals to travel slower throughout the body. The clinical features include distal paresthesia and pain precedes muscle weakness that ascend rapidly from lower to upper limbs. Facial and bulbar weakness also gets experienced. Breathing problem patients require ventilator support, if not, it may lead to rapid deterioration of respiratory failure. The investigations show decrease in CSF proteins, electrophysiological changes and presence of antibodies to the gangliosides. GBS can be managed by regular monitoring of respiratory function and by active treatment with plasma exchange or intravenous immunoglobulins that shorten the duration of ventilation and improves the prognosis. Both intravenous immunoglobulin treatment and plasma exchange have been found to be equally beneficial. Once diagnosed, proper treatment may help a patient make a complete recovery. Overall, 80% of patients recover completely within 3-6 months, 4% die and the remainder suffer from severe residual neurological disability.

**KEY WORDS:** Autoimmune disorder, respiratory failure, paralysis, plasma exchange, ventilation.

## **STUDY THE PREVALENCE OF KNEE OSTEOARTHRITIS IN PATIENTS WITH OTHER DISEASE COMPLICATIONS AND CURRENT SCENARIO IN TREATMENT TECHNIQUES**

M Divya Sai\*<sup>1</sup>, Tejaswini, Prathyusha, Venkaiah, S V Subbaiah<sup>2</sup>

<sup>1</sup> Pharm D V Year, Nirmal College of pharmacy, Kadapa

<sup>2</sup> Assistant Professor, Department of pharmacy practice, Nirmal College of pharmacy, Kadapa

\*Corresponding Author E-mail address: [divyasaimeruva@gmail.com](mailto:divyasaimeruva@gmail.com)

### **ABSTRACT**

**AIM AND OBJECTIVES:** To study the prevalence of knee osteoarthritis in patients with other disease complications and current scenario in treatment techniques. **METHOD:** For this study, data of 298 subjects were collected who had undergone Osteoarthritis. The data included age, gender, occupation, stage of osteoarthritis, line of treatment and complications. Descriptive analysis of the collected data was conducted along with the statistical analysis and the results were shown in the form of tables and graphs. **RESULTS:** From this study it is observed that the prevalence of knee osteoarthritis in patients with other disease complications and current scenario in treatment techniques. Maximum number of subjects between the age of 61-70(115) and minimum number of subjects between the age of 20-30(8), most of the subjects used only NSAIDS (22) in 1<sup>st</sup> stage osteoarthritis, subjects used this treatment corticosteroids(2) ,GAG(0), NPR(0), NSAIDS(7), VS(0), KR(25) in 4<sup>th</sup> stage osteoarthritis ,subjects 1<sup>st</sup> line treatment(150)subjects were more when compared to 2<sup>nd</sup> line(114)and 3<sup>rd</sup> line treatment(25), subjects hypertensive(46) subjects were more when compared to other complications. **CONCLUSION:** From this study we concluded that knee osteoarthritis is seen in most of the aged people. Current methods for its diagnose are clinical method, radiographic and Magnetic resonance imaging. Data collected shown that males are more prone when compared to females, according to our study daily labours were more prone to osteoarthritis due to daily work, The data also gives most of the patients were in 2<sup>nd</sup> stage of osteoarthritis and maximum patients are used NSAIDS in the treatment. Based on our study we suggested physiotherapy and other alternative techniques for regeneration of cartilage.

**KEY WORDS:** Non steroidal anti-inflammatory drugs, Intra articular, Corticosteroids, Platelet rich plasma, Neuropathic pain relievers, Glycosaminoglycan.

## **CHURG STRAUSS SYNDROME: ETIOPATHOGENESIS, ASSESSMENT AND MANAGEMENT**

Shaik Hazira Farheen\*<sup>1</sup>, E. Tejaswini<sup>1</sup>, Dr. Shaik Kareemulla<sup>2</sup>

<sup>1</sup>Pharm D 3<sup>rd</sup> year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003

<sup>2</sup>Assistant professor, Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa, Andhra Pradesh-516003

\*Corresponding Author E-mail address: [hazirafarheen999@gmail.com](mailto:hazirafarheen999@gmail.com)

### **ABSTRACT**

Churg-Strauss Syndrome (CSS) is also termed as Eosinophilic Granulomatosis with Poly-Angitis (EGPA). CSS is a rare idiopathic multisystem vasculitis that may affect multiple organ systems. It is characterized by necrotizing vasculitis, extravascular granulomatosis and prominent eosinophilic infiltration of various tissues. CSS has an incidence of 1-3/10,00,000 pathologically. Most affected individuals have a history of airway allergic hypersensitivity (Atopy). Although the exact cause of CSS is not known, it is considered as a Th-2 mediated disease. Many researchers indicate that abnormal immune system plays an important role and hence it is categorized under autoimmune disorder. EGPA is an anti-neutrophil cytoplasmic antibody (ANCA) associated vasculitide. This disorder is separated by three distinct phases. First phase begins with a prolonged period of allergic rhinitis, nasal polyposis and asthma. In second phase, peripheral blood eosinophilia development while in third phase i.e., systemic vasculitic phase, eosinophilic tissue infiltrates are experienced with culmination. Clinical findings associated with CSS include fever, general feeling of weakness, malaise, weight loss, myalgia. Symptoms may vary depending upon the specific organ system affected. Cardiac involvement is the leading cause of EGPA-patient deaths and basic cardiac investigations (chest imaging, electrocardiography, transthoracic echocardiography, and troponin I measurements) are recommended. In addition, spirometer is used to evaluate pulmonary function tests (lung volumes & lung capacities). CSS can be managed with mono-clonal antibodies (Mepolizumab, Rituximab). Without appropriate treatment, serious organ damage and potentially life-threatening complications may result.

**KEYWORDS:** Auto-immunity, vasculitis, Eosinophilia, Asthma, Th2-mediated disease.

## **ASSESSMENT OF RISK FACTORS ASSOCIATED WITH PRETERM DELIVERIES IN TERTIARY CARE TEACHING HOSPITAL**

P. Amreen Khan\*<sup>1</sup>, M.AhamadiTabasum<sup>1</sup>, Mr. M. VenkataSubbaiah<sup>2</sup>

<sup>1</sup> Pharm D V Year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh

<sup>2</sup> Associate professor, Department of pharmacy practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh

\*Corresponding Author E-mail address: [p.amreenkhan@gmail.com](mailto:p.amreenkhan@gmail.com)

### **ABSTRACT**

**Background:** Preterm birth (PTD) is the birth of a baby before 37 weeks of gestation. It is a major obstetrical challenge and causes perinatal neonatal mortality and morbidity. Complexity in etiology and risk factors influences the outcomes of PTD. **Aim and objective:** The main aim of our study is to assess the risk factors associated and outcomes of PTDs. **Materials & Methods:** A prospective cohort study was conducted in the department of Gynaecology and Obstetrics at Government General Hospital, Kadapa. Over a period of 6 months, 80 subjects were enrolled and studied based on inclusion and exclusion criteria after obtaining the informed consent. A self designed data collection form was used to record socio-demographic data and clinical profile of the subjects. Descriptive statistical parameters like percentages, mean and standard deviation were calculated. **Results:** The impact of incidence range in the present study was 31.25%. In our study, maximum preterm deliveries were observed in the age group of 18-23 years (44%). BMI in majority of subjects 49 (61%) was 18.5-24.9 Kg/m<sup>2</sup> (Normal weight). Subjects from rural areas i.e., around 51 (64%) & educated below primary i.e., around 43 (54%) were more prone to PTDs. Multiparous woman (51%) and women having history of LSCS mode of delivery (64%) were at more risk for preterm. Majority of the subjects with PTD's 43 (54%) were having cervical length 1.2-2.3 Cm. The commonest risk factor for preterm was Anemia (45%) followed by Pre-eclampsia (24%), Oligohydramnios (18%), LSCS (18%). **Conclusion:** The study suggests an urgent need for strengthening effective guidelines and appropriate counselling for prevention of preterm.

**KEY WORDS:** preterm, multiparous, risk factors, cohort.



## **A STUDY ON DRUG PRESCRIBING PATTERN AMONG PSYCHIATRY OUT-PATIENTS AT A TERTIARY CARE TEACHING HOSPITAL**

**A. Ramakrishna Prasad<sup>\*1</sup>, P. Lakshmi<sup>2</sup>, B. Sivakala<sup>1</sup>,**

<sup>1</sup>Pharm D (P.B) Intern, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati, Andhra Pradesh, India

<sup>2</sup>Associate Professor, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati, Andhra Pradesh, India

\*Corresponding Author E-mail address: [ramakrishna24@live.com](mailto:ramakrishna24@live.com)

### **ABSTRACT**

**Introduction:** Drug prescribing pattern varies distantly among different geographical areas and is influenced by patient characteristics, type of disease prevalent, cultural and environmental influences, socioeconomic status, availability of newer drugs and prescribing habit of physicians. The expanding and challenging field of psychopharmacology is constantly seeking new and improved drugs to treat psychiatric disorders. In this way, psychiatrists are continuously exposed to newly introduced drugs that are claimed to be safe and more efficacious. **Objectives:** To assess the prescribing patterns of psychotropic drugs in psychiatric out-patient department. To assess and evaluate frequency of adverse effects and drug interactions, to determine the prescription pattern by using WHO prescribing indicators **Methods:** A prospective observational study conducted in a tertiary care hospital among 216 patients. Patient demographics, past medical history, family and surgical history, co-morbidities, diagnosis and present medications prescribed were recorded. The data was obtained by direct patient interview and from patient case profiles. The collected psychotropic drugs were analysed for prescribing patterns, to identify the ADRs associated. **Results:** In a total of 216 patients, mental illness were most commonly observed in females 114 (52.70%). Majority patients were in the range of 21-30 years age group 70 (32.40%). BPAD were commonly diagnosed followed by schizophrenia. Commonly prescribed drugs were olanzapine 95 (16.78%) and weight gain was commonly observed ADR with olanzapine. Drug interactions were mostly seen between the carbamazepine and risperidone. **Conclusion:** Some of the antipsychotic polytherapy, dosing strategies, drug interactions and high prevalence of olanzapine and risperidone use are therapeutic issues that needs to be addressed to foster evidence-based medicine

**KEYWORDS:** olanzapine, Psychotropic drugs, adverse drug reaction, weight gain.

## **DIAGNOSTIC ACCURACY OF THE NEW XPERT MTB/RIF ULTRA FOR MTB**

S.Fathimuzzebra<sup>\*1</sup>, Sreeram Vandavasi Guru<sup>2</sup>

<sup>1</sup>II year, Doctor of Pharmacy, P.Rami Reddy Memorial College of Pharmacy, Kadapa.

<sup>2</sup>Assistant Professor, P.Rami Reddy Memorial College of Pharmacy, Kadapa.

\*Corresponding author email: [shaikfathimuzzebra786@gmail.com](mailto:shaikfathimuzzebra786@gmail.com)

### **ABSTRACT**

Tuberculosis remains as an ongoing and predominant health issue in the world. It is a highly contagious airborne infection mainly caused by the bacterium Mycobacterium Tuberculosis. The classic symptoms of active TB are a chronic cough with blood containing mucus, fever, night sweats and weight loss. The overall Mortality rate of TB was 12.3%. Hence, the disease should be diagnosed at the earliest to prevent morbidity and Mortality. The mostly used diagnostic methods are x-ray, sputum tests and induration techniques such as Mantoux, Heaf or tine test which is a time consuming and less accurate with a poor detection sensitivity. To enhance the diagnostic sensitivity a new technique was developed “**re-engineered xpert MTB/RIF Ultra assay**”. The new assay was recommended by WHO since 2017. Now-a-days resistance to rifampicin and other anti-tubercular agents is increasing. Hence, the new assay is very helpful in detecting Mycobacterium Tuberculosis complex along with rifampicin resistance. The assay is rapid and highly sensitive to MTB and RIF which helps in confirming the disease in less than 2 hrs of time. The expert ultra exhibits a viable alternative in sensitising both pulmonary TB and extra pulmonary TB. The assay involves a **nucleic acid amplification** technique which uses a disposable cartridge with a gene instrument system. Sputum is collected, reagent will be added to the sputum placed in a cartridge. This cartridge is then placed in gene xpert machine. All processes from this point on is fully automated. Xpert MTB/RIF has been improved to xpert MTB/RIF ultra to overcome, to improve the sensitivity of MTBC and to avoid false positive results in RIF resistance detection. The new assay is advantageous as the results are quickly available and minimal technique training **is needed** and the technique contributes to be cost-effective by avoiding unnecessary treatment in false positive patients.

**KEYWORDS:** MTB: Mycobacterium Tuberculosis, RIF: Rifampicin, Induration.

## **A CASE REPORT ON DRUG INDUCED GYNACOMASTIA**

V.Wazeed basha<sup>\*1</sup>, Dr. Sreeram vandavasi guru<sup>2</sup>.

<sup>1</sup>Pharm D IV year, Rajiv Gandhi Institute of medical sciences (RIMS), PRRMCP, Kadapa, India - 516003.

<sup>2</sup>Assistant professor, Dept. of Pharmacy Practice, PRRMCP, Kadapa, India- 516003.

\*Corresponding Author E-mail address: [wazeedbasha7@gmail.com](mailto:wazeedbasha7@gmail.com)

### **ABSTRACT**

Gynecomastia is a rare condition in males with a symptom of enlarged breast tissue size. It is generally caused by altered ratio of estrogens to androgens in the male individuals. A cause includes several diseases and nearly 25% is associated with drugs. A mostly used drug that causes gynecomastia includes spironolactone, amlodipine, TCAs, and ketoconazole. It is a rare side effect. But it has an occurrence of 1% in amlodipine and 1.2% in spironolactone. Diagnosis is majorly done by presence of symptoms like increased breast tissue, and it should be differentiated with pseudo disease, and the increasing nature may be of one side or on both side of individuals. Presence of prolactin secreting tumour may induce milk ejection from male breasts. Mostly it is resolved within one to two months of discontinuation of suspected drug. Mastectomy is the only surgical procedure where the increased breast tissue is removed. Drugs like aromatase inhibitors, estrogen receptor modulators can also be used, but have no clinical practice in males.

**KEY WORDS:** Gynecomastia, Tri Cyclic Antidepressants, Mastectomy, Aromatase Inhibitors, oestrogen receptor modulators.

## **ROLE OF VITAMINE B-COMPLEX IN REDUCING PSYCHIATRY SYMPTOMS – A BRIEF REVIEW**

P.Vani \*<sup>1</sup>, Dr. S. Padmakar<sup>2</sup>.

<sup>1</sup> Pharm D, 4<sup>th</sup> year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh.

<sup>2</sup> Assistant professor, Department of pharmacy practice, P. Rami Reddy Memorial College of Pharmacy.

\*Corresponding Author E-mail address: [vanipalla1019@gmail.com](mailto:vanipalla1019@gmail.com)

### **ABSTRACT**

Vitamins supplementation has a beneficial effect on many aspects of mood and mild psychiatric symptoms in healthy populations. B-complex vitamins are important for various functions in the human body. A review of worldwide studies has found that add-on treatment with high doses of B vitamins including B6, B8, and B12 can significantly reduce the psychiatry symptoms along with the standard treatment. They are all important for the maintenance of normal neurological functions due to different biochemical modes of action, especially as coenzymes. Cobalamin (Vitamin B12), a water-soluble essential vitamin, has a vital role in DNA synthesis during cell division. It is vital for homocysteine methylation to methionine, which is necessary for the synthesis of S-adenosyl methionine, which is essential for neurotransmitter metabolism. Any abnormality in the methylation process has been hypothesized to be a possible biochemical basis for neuropsychiatric manifestations of vitamin B12 deficiency. It is also linked with synthesis of neurotransmitters such as dopamine and serotonin, and thus has been implicated in the pathogenesis of various neuropsychiatric disorders. Supplementation with cobalamine enhances cerebral and cognitive functions in the elderly; it frequently promotes the functioning of factors related to the frontal lobe, in addition to the language function of people with cognitive disorders. Psychiatric manifestations of vitamin B12 deficiency can include depression, apathy, irritability, dementia, catatonia, delirium, and hallucinations. Although varied psychiatric manifestations caused by vitamin B12 deficiency have been described, the possibility of psychiatric disorders being caused by B12 deficiency is often overlooked. Vitamin B complex supplements are effective and safe in improving depression, anxiety, and quality of life in patients diagnosed with psychiatric disorders.

**KEYWORDS:** Cobalamine, depression, anxiety, hallucinations, quality of life.

## **ROLE OF CLINICAL PHARMACIST IN DETERMINING TOBACCO AND ALCOHOL CONSUMPTION PATTERNS AND ITS REPERCUSSIONS IN A TERTIARY CARE HOSPITAL**

Sreekanth Devarakonda<sup>\*1</sup>, Divyagoppineni<sup>2</sup>, Sravya Patibandla<sup>1</sup>, Gowthami Kunchapu<sup>1</sup>

<sup>1</sup>Pharm D Intern, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati, Andhra Pradesh, India

<sup>2</sup>Assistant Professor, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati, Andhra Pradesh, India

\*Corresponding Author E-mail address: [sreekanthdevarakonda21@gmail.com](mailto:sreekanthdevarakonda21@gmail.com)

### **ABSTRACT**

Tobacco and alcohol consumption are the two unhealthy behaviours which often begin during adolescence. They remain one of the main preventable causes of ill-health and socio-economic burden in the society. This study mainly aims at determining the tobacco and alcohol consumption patterns, their interdependence on each other and their interactions with drugs and enumerating diseases and co-morbidities and clinical pharmacist role in providing patient education and counselling regarding their unhealthy behaviours and creating awareness on these habits and related economic burden on patients. A cross-sectional study conducted in a tertiary care hospital among 250 patients for 6 months. Data was collected from patients by WHO tobacco consumption questionnaire, CAGE tool, FAST + AUDIT tool and Kuppuswamy socio-economic scale through interviewing each subject. The majority of the patients (24.8%) were in age group of 41-50 years. Males are more prone to these habits (96.4%). Most common age of initiation of these habits are 21-30 years. Most commonly affected system was accessory organs 75 (30%) and 46% of the patients are suffering from co-morbidities. A total of 121 (48.4%) prescriptions have drug interactions with social habits. 71% of the patients are suffering from occupational or financial stress. 244 (97.6%) patients are experiencing interdependence of these habits. Majority of the patients (95.2%) are of low economic status experiencing economic burden due to these habits. Clinical pharmacist main provision is providing care to individual patients by patient counselling, regarding the repercussions of these social habits and creating awareness to the patients.

**KEYWORDS:** CAGE tool, FAST + AUDIT tool, Kuppuswamy scale, Interdependence, Clinical pharmacist, Repercussions.

## **SIGNIFICANCE OF BARIATRIC SURGERY IN PATIENTS WITH SEVERE OBESITY**

Y.Maneesha<sup>\*1</sup>, S.Padmakar<sup>2</sup>

<sup>1</sup>\*Pharm D IV<sup>th</sup> year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh, India-516003.

<sup>2</sup>Assistant Professor, Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh, India-516003.

\*Corresponding Author E-mail address: [maneesha584@gmail.com](mailto:maneesha584@gmail.com)

### **ABSTRACT**

Obesity is a medical condition in which excess body fat has accumulated to an extent that it may have a negative effect on health. There are various strategies to reduce obesity. These include dietary changes, behavioral modifications (including exercise), and drugs (that can cause malabsorption or alterations in satiety–appetite signaling). However, they are not always effective, and at that stage bariatric surgery becomes a viable alternative. Obese patients who qualify for bariatric surgery includes Individuals with a body mass index (BMI) of 35 to 40 kg/m<sup>2</sup> or greater, who have obesity related co-morbidities. Bariatric surgery has been shown to improve numerous psychological, metabolic, physiological, and functional parameters. These include quality of life measures, diabetes, hypertension, hyperlipidemia, and sleep apnea. However, there are different types of bariatric surgery, including Roux-en-Y gastric bypass (RYGB), gastric banding, sleeve gastrectomy (SG), biliopancreatic diversion (BPD), and other variations of these procedures. The various weight loss procedures have different levels of popularity, outcomes, and success rates. Their effects on reducing obesity and co-morbidities are dissimilar as well. Dissimilar bariatric procedures also have variable cellular and tissue effects, as well as nutritional complications. It is therefore clear that there are complex interrelationships between obesity and metabolic profiles before and after bariatric surgery. However, understanding these relationships has been difficult as the information relating to nutrition, surgical procedures, outcomes, and side effects.

**KEY WORDS:** Obesity, bariatric surgery, body mass index (BMI), sleeve gastrectomy (SG), Roux-en-Y gastric bypass (RYGB), biliopancreatic diversion (BPD).

## **A CASE REPORT ON PHENYTOIN SODIUM INDUCED CHRONIC LIVER DISEASE**

P. Saikarthik\*,

Pharm D IV year, Rajiv Gandhi Institute of medical sciences (RIMS), PRRMCP, Kadapa, India -  
516003.

\*Corresponding Author E-mail address: [saiprokarthik000@gmail.com](mailto:saiprokarthik000@gmail.com)

### **ABSTRACT**

Phenytoin is a broad spectrum anti-epileptic drug effective in the management of status epilepticus, complex partial and generalized tonic clonic seizures, Phenytoin can produce a number of adverse effects on structure and function of hepatocytes. A 39-year female patient was admitted in female medical ward with chief complaints of right quadrant upper abdominal pain which is insidious in onset and gradually progressive, abdominal distension since 2 weeks and yellowish discoloration of eyes associated with fever. Patient had a history of phenytoin use and she got hospital admission due to phenytoin adverse effects on liver. Better vigilance is necessary for implementation of safe and effective for each individual patient

**KEYWORDS:** Status Epilepticus, Generalized Tonic-clonic Seizures, Abdominal distension, vigilance.

## **EPIDEMIOLOGY OF VARIOUS ORTHOPEDIC DISEASES IN A TERTIARY CARE TEACHING HOSPITAL**

V.Harinath reddy<sup>\*1</sup>, Dr. Sreeram vandavasi guru<sup>2</sup>.

<sup>1</sup>Pharm D IV year, Rajiv Gandhi Institute of medical sciences (RIMS), PRRMCP, Kadapa, India - 516003.

<sup>2</sup>Assistant professor, Dept. of Pharmacy Practice, PRRMCP, Kadapa, India- 516003.

\*Corresponding Author E-mail address: [Harinathreddy195@gmail.com](mailto:Harinathreddy195@gmail.com)

### **ABSTRACT**

Epidemiology is a science of medicine which measures the occurrence and prevention of morbidity and mortality. It has made many developments in research, public health, basic research. We tried to identify the incidence and relation of disease to the risk factors which will help to prevent the disease occurrence and to easily diagnose the disease. The aim was to determine the prevalence of various orthopedic diseases in a tertiary care teaching hospital and to determine the risk factors included. Out of 900 patients 191 were complained of low back pain, 149 with osteoarthritis, knee joint pains 108, 57 with spondylosis, 53 with fractures, 47 with arthritis of different joints, 27 with accidental falls, and 15 with rheumatoid arthritis. One to two cases were reported with groin pain, injury, trigger finger, and only a single case with spondyl arthritis. The observed cases were divided according to the gender. It has shown 84 males and 107 females with LBA, 67 males and 41 females with joint pains, 25 males and 28 females with fractures, 22 males and 35 females with spondylosis, 15 and 26 in sciatica, 4 and 11 in rheumatoid arthritis. The occurrence was almost comparative in arthritis. (osteoarthritis: 80 males and 79 females, arthritis of various joints: 23 in males and 24 in females). The incidence of these diseases may vary according to the risk factors associated, genetical predisposition, region etc. in these areas epidemiological studies need to be done further for precise data that may help the physician.

**KEYWORDS:** Low Backache, Osteoarthritis, Rheumatoid Arthritis, Sciatica, Spondylosis, Morbidity, Mortality, Incidence, Prevalence.



## **A CASE SERIES ON AMLODIPINE INDUCED EDEMA**

A.Sreevani\*<sup>1</sup>, G. Jacob Gnanaprakashan<sup>1</sup>, Sreeram Vandavasi Guru<sup>2</sup>

<sup>1</sup>Pharm D, 4<sup>th</sup> year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh.

<sup>2</sup>Assistant professor, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh.

\*Corresponding Author E-mail address: [akkisettysreevani@gmail.com](mailto:akkisettysreevani@gmail.com)

### **ABSTRACT**

Hypertension is one of the most common clinical conditions encountered by the physicians. There are wide ranges of medications available for treatment of hypertension, in which Calcium Channel Blockers (CCBs) are one of the most commonly prescribing drugs. CCB's are potential antihypertensive agents but the main drawback of this group of drugs is it produces pedal edema which decreases the compliance. The main cause for CCB-induced edema is increased capillary hydrostatic pressure by arteriolar dilation. Amlodipine is a third generation calcium channel blocker used in adults and children above 6 years old for the treatment of hypertension, angina and other coronary artery disease. The drug exhibits constant pharmacokinetics and pharmacodynamics and well tolerated but has more incidence of pedal edema than the other calcium channel blockers often leading to noncompliance and discontinuation of drug. This review article is aiming to explain the calcium channel blocker in particular amlodipine - associated edema and resolution of edema through the use of other hypertensive agents. Here we present 5 cases of different age group patients diagnosed with hypertension, type II diabetes mellitus, hemorrhagic stroke, CVA and gastritis who gradually developed pitting type pedal edema after the initiation of oral amlodipine of dose 5mg. The symptoms improved on cessation of amlodipine and the patient was managed with an alternative antihypertensive agents. Here, we set up the relationship between the suspected drug and the adverse reaction observed by performing causality assessment. The early detection, discontinuation of offending drug and prescription of alternative hypertensive agent improves patient's condition and restores normal quality of life.

**KEYWORDS:** Hypertension, Calcium Channel Blockers (CCB's), Glycated haemoglobin (HBA1c), Edema.

## **ORAL THRUSH INDUCED BY INHALER CORTICOSTEROIDS**

B. Merlin Phoebe Rani<sup>\*1</sup>, V.Wazeed<sup>1</sup>, Mr. VenkataSubbaiah<sup>3</sup>

<sup>1</sup>PharmD, 4<sup>th</sup> year, P.Rami Reddy Memorial college of Pharmacy, Kadapa, Andhra Pradesh, India..

<sup>3</sup> Professor, Department of pharmacy practice, P. Rami Reddy Memorial college  
of Pharmacy, Kadapa, Andhra Pradesh, India.

\*Corresponding Author E-mail address: [merlynshines@gmail.com](mailto:merlynshines@gmail.com)

### **ABSTRACT**

Candidiasis is a fungal infection caused by yeasts from the genus Candida. It is identified by the presence of well-documented curdy white plaques. Curdy white lesions are displayed in the form of a membrane and are reservoir for Candida albicans. It is also termed by other words such as oral yeast infection, candidal stomatitis, oral candidosis, oralmycosis and moniliasis. It is commonly called oral candidiasis or thrush when it affects the mouth. It is one of the common side effects associated with the long term use of steroid inhalers. Nebulizing therapy with corticosteroids is widely accepted treatment approach for patients with acute exacerbations of Chronic Obstructive Pulmonary Disease. The other side effects of steroid inhalers include hoarseness of voice, dysphonia which are usually considered as safe and ignorable. We report this case of 74 year old male patient who was on rescue therapy i.e., short acting  $\beta_2$  agonist and inhaled corticosteroid from five years. In addition to that the patient frequently received Budesonide nebulizing therapy twice a day presented with oral candidiasis.

### **KEY WORDS:**

Oral candidiasis, Thrush, Inhaled corticosteroids, Nebulizer therapy, Budesonide, Immunosuppressant.

## **MEAN PLATELET VOLUME IN ACUTE MYOCARDIAL INFARCTION: A CASE-CONTROLLED STUDY**

G.Harsha latha <sup>\*1</sup>

<sup>1</sup>Pharm D-1V Year, P. Rami Reddy Memorial College of Pharmacy, Kadapa , Andhra Pradesh, India.

\*Corresponding Author E-mail address: [harshalatha081@gmail.com](mailto:harshalatha081@gmail.com)

### **ABSTRACT**

Acute myocardial infarction (AMI) is a common emergency which requires timely intervention. Traditionally, its diagnosis is based on symptoms, electrocardiogram and cardiac biomarkers. Symptoms may be nonspecific. Electrocardiogram is easily available, but its sensitivity is low. Cardiac biomarkers are time-dependent and within the normal limit at the first three hours after the initiation of AMI. Mean platelet volume (MPV) has been reported to be high in AMI. Fifty cases of AMI, without prior history of stroke or infarction, were enrolled in the study. Equal number of healthy controls was taken for comparison. Blood sample collected for estimation of MPV was processed within thirty minutes of venesection. MPV was noted to be significantly higher in patients with AMI. Patients with hypertension had significantly higher MPV than hypertensive controls. In subgroup analyses of affected patients, patients with diabetes had significantly higher MPV than those without diabetes. In conclusion, MPV may be a useful adjuvant to the diagnosis of AMI.

**KEYWORDS:** Mean platelet volume, Acute Myocardial Infarction, Diabetes Mellitus, Case control study

## **A STUDY ON BENEFICIAL EFFECTS OF METOPROLOL IN CONGESTIVE HEART FAILURE**

T.Harini\*<sup>1</sup> Dr. S.Padmakar<sup>2</sup>

<sup>1</sup>\*PharmD ,4<sup>th</sup> year ,P.Rami Reddy Memorial college of Pharmacy, Kadapa, Andhra Pradesh, India..

<sup>2</sup>Assistant Professor, Department of pharmacy practice, P.Rami Reddy Memorial college of Pharmacy, Kadapa, Andhra Pradesh, India.

\*Corresponding Author E-mail address: [harinitanguturi@gmail.com](mailto:harinitanguturi@gmail.com)

### **ABSTRACT**

Metoprolol has beneficial effects in congestive heart failure, it binds with beta adrenergic receptors of brain, heart, kidney there by it will reduces sympathetic neurotransmitters release, decreases heart rate, force of contraction and cardiac output, decreases renin hormone release from the kidneys. By these three actions it will reduces pre load and after load on heart. It directly opens specific L-type of membrane calcium channels in heart and also glycogenolysis which leads to increase in pumping capacity of left ventricle, there by heart will meet various metabolic demands of the body. To provide Safe and effective management for congestive heart failure patients by adding metoprolol, A 6 minutes walking test, chest X-Rays, ECG, 2 D-Echo and other required investigations are conducted for validation of beneficial effects of metoprolol in improving ejection fraction at base line and also at follow up by using various study materials in four months duration. A total of 70 patients were recruited among that 50 patients were test and 20 patients were standard. Exercise capacity and ejection fraction of test group patients and standard group patients was estimated and improvement in ejection fraction, exercise capacity was observed in test group compared to standard group at first (0.92%), (0.72 min) and final follow up (3.74%), (3.24 min) respectively. Statistically significant difference was observed in ejection fraction ( $< 0.05$ ) and exercise capacity ( $< 0.05$ ) test group, but not in standard group (E.F-0.067, E.C- 0.079). Also found improvement in chest X-ray, ECG at base line Vs final follow up. Metoprolol use in congestive heart failure- increases left ventricle ejection fraction, exercise capacity, anti-remodeling effect by decreasing myocardial apoptosis and also reduces cardiac disability frequencies, prevents long term complications, reduces morbidity and mortality. For providing better patient care to CHF patients there is a need to add metoprolol.

**KEY WORDS:** Metoprolol, Beta adrenergic receptors, Congestive heart failure (CHF), Myocardial apoptosis, cardiac output.

## **MANAGEMENT OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN – A BRIEF REVIEW**

S. Naziya sheerin<sup>\*1</sup>, S.Padmakar<sup>2</sup>

<sup>1</sup>Pharm D IV year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh, India-516003.

<sup>2</sup>Assistant Professor, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh, India-516003.

\*Corresponding Author E-mail address: [nazyashaik06@gmail.com](mailto:nazyashaik06@gmail.com)

### **ABSTRACT**

Attention deficit hyperactivity disorder (ADHD) is one of the most common neurodevelopmental disorders with childhood onset. ADHD is a severe developmental disorder characterized by pervasive and impairing symptoms of inattention, hyperactivity, and impulsivity that occur before the age of seven. The behavioral disturbance of children with ADHD significantly impairs their social, academic, or occupational functioning. Etiology of ADHD is complex and multi-dimensional, combining genetic, psychosocial, and environmental factors. Pharmacotherapy including stimulants (methylphenidate, amphetamine), noradrenergic agents (atomoxetine), alpha agonists (guanfacine and clonidine), antidepressants (imipramine) and non-pharmacological therapy plays a fundamental role in the management of ADHD. Studies reveal that in terms of response, behavioural therapy (alone or in combination with stimulants) seemed superior to behavioural therapy, cognitive training and non-stimulants; and behavioural therapy in combination with stimulants seemed superior to monotherapy with stimulants or non-stimulants. Methylphenidate and amphetamine seemed more efficacious than atomoxetine and guanfacine. Behavioural therapy, particularly given by parents and with active child and teacher involvement, Cognitive training (working – memory training, attention training), neurofeedback, dietary therapy, polyunsaturated fatty acids (Omega-3 and -6 fatty acids), amino acids, minerals (zinc, iron), herbal therapy, homeopathy, and Physical activity immediately boosts the brain's dopamine, norepinephrine, and serotonin levels all of which affect focus and attention.

**KEY WORDS:** Attention deficit hyperactivity disorder (ADHD), Hyperactivity, Impulsivity, Children.

## **A RARE CASE REPORT ON GENU VALGUM**

B.U.Charitha<sup>\*1</sup>, Dr.Sreeram<sup>2</sup>

<sup>1</sup>Pharm D IV year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh, India-516003.

<sup>2</sup>Assistant Professor, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh, India-516003.

\*Corresponding Author E-mail address: [umeshcharitha98@gmail.com](mailto:umeshcharitha98@gmail.com)

### **ABSTRACT**

Genuvalgum is a deformity developing gradually, in which the knees rub together or knock in walking and the ankles are far apart. Genu valgum rarely worsens after age 7 & valgus should not be worse than 12 degrees, intermalleolar distance should be <8 cm. The degree of genu valgum is estimated by the Q angle. For persistent genu valgum, treatment recommendations include a wide array of options, ranging from lifestyle restriction, bracing, exercise programs, and physical therapy. Here in this case, valgus malalignment of the extremity was significant (Q angle 22 degrees) so corrective osteotomy (supra condylar osteotomy) was done to reduce Q angle and to achieve anatomical alignment of the limb. On patient follow up, gradual improvement in Q angle is noticed.

**KEY WORDS:** Genu valgum , Osteotomy, Q-angle.

## **PANTAPRAZOLE INDUCED ERYTHEMATOUS RASH A CASE**

### **REPORT IN GENERAL HOSPITAL**

G.Ramu<sup>\*1</sup>, Sree Rama Vandavasi Guru<sup>2</sup>

<sup>1</sup>\*PharmD ,4<sup>th</sup> year , P.Rami Reddy Memorial college of Pharmacy, Kadapa, Andhra Pradesh, India..

<sup>2</sup> Assistant Professor, Department of pharmacy practice,P.Rami Reddy Memorial college of Pharmacy, Kadapa, Andhra Pradesh, India.

\*Corresponding Author E-mail address: [ramugdhone1618@.com](mailto:ramugdhone1618@.com)

### **ABSTRACT**

Proton pump inhibitors are the most widely used drugs for the peptic ulcer and related disorders because of their outstanding efficacy and safety. Pantoprazole is a drug from the proton pump inhibitors (PPIs) group, is widely used for treatment of gastroesophageal diseases and peptic ulcer. Proton pump inhibitors act by inhibiting H<sup>+</sup>/K<sup>+</sup>ATPase because of rare side effects, it is well known among public. Erythematous rash is exhibiting abnormal redness of the skin or mucous membranes due to the accumulation of blood in dilated capillaries (as in inflammation) marked by erythema an erythematous rash. Skin examination revealed multiple discrete, erythematous, scaly, indurated papules on the lower back. In this report we will discuss a case of 14 years old male patient clinically diagnosed with pantoprazole induced erythematous rash.

**KEY WORDS:** Proton Pump Inhibitors (PPIs), H<sup>+</sup>/K<sup>+</sup>ATPase, pantoprazole, Erythematous rash.

## **PERSONALISED MEDICINE: ITS ADVANTAGES AND FUTURE TRENDS OF HEALTH CARE SYSTEM**

Patan Ayub Khan<sup>\*1</sup>, Surekha<sup>2</sup>

<sup>1</sup>\*B.Pharmacy IV<sup>th</sup> year ,PRRMCP, Kadapa, Andhra Pradesh, India-516001

<sup>2</sup>Associate professor, Department of Pharmaceutics, PRRMCP, Kadapa, A.P, India-516001.

\*Corresponding Author E-mail address: [phatanayub99@gmail.com](mailto:phatanayub99@gmail.com)

### **ABSTRACT**

Personalised medicine (PM) is an emerging practice of medicine that uses an individual genetic profile to guide decisions made in regard to the diagnosis, prevention and treatment of diseases. PM is being advanced through data from the Human Genome Project. It is beginning to achieve its goal of “the right therapy to the right patient at the right time”. Human genome information now allows providers to create optimized care plans at every stage of a disease, shifting the focus from reactive to preventive health care. The approach relies on identifying genetic, epigenomic, and clinical information that allows the breakthroughs in our understanding of how a person's unique genomic portfolio makes them vulnerable to certain diseases. The less efficient non-PM (trial and error) approach can lead to drug toxicity, severe side effects, reactive treatment and misdiagnosis contribute to increasing healthcare costs. Increased patient stratification will allow for the enhanced application of personalized and pro-active treatment regimens, resulting in reduced costs and quality of life enhancement.

**KEYWORDS:** Personalized medicine, vulnerable, treatment



## **A REVIEW ON TRANSFUSION SAFETY AND HEMOVIGILANCE**

N. Nitish Reddy<sup>\*</sup>, M. Bhavitha, K. Sahithya, M. Suman kumar, M. Balajiramaiah, S. Shameem

P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh, India-516001

\*Corresponding Author E-mail address: [nithishreddy050@gmail.com](mailto:nithishreddy050@gmail.com)

### **ABSTRACT**

Haemovigilance is a continuous process of collection and data analysis of transfusion related adverse reaction in order to investigate their causes and outcomes, and prevent their occurrence and reoccurrence. Hemovigilance includes the identification, reporting and events in recipient and blood donors as well as incident in manufacturing process and result in errors. It is also an integral part of quality management in blood system, triggering corrective and preventive actions and maintain quality and safety of blood products and the transfusion process. It is a systemic surveillance of adverse reactions like accompanying to transfusion with the aim of improving quality and minimizing effects. It is as well connected activity of data accumulating and analysis of transfusion related adverse reactions like acute hemolytic transfusion reactions (AHTR), febrile non hemolytic transfusion reactions (FNHTR), hyperkalemia etc. A centralized hemovigilance program is to assure patient safety and to promote public health it has been launched for the first time in India on 10th December 2012 in 60 medical colleges in first phase along with a well structured program for monitoring ADRs associated with transfusion and blood product administration. National institute of biological will be the national co-ordinating centre for hemovigilance. This program was implementing under overall ambit of pharmacovigilance program of India (PVPI) which is co-ordinated by Indian Pharmacopoeia Commission (IPC). All medical colleges of country will be enrolled in this program. It is a risk monitoring system to the conventional practice of transfusion medicine, ultimate purpose is to improve quality and assurance safety purpose is to improve quality and assurance safety of transfusion.

**KEYWORDS:** Hemovigilance, Blood safety, National hemovigilance program.

## **FORMULATION AND EVALUATION OF EXTENDED RELEASE TABLETS OF VALACYCLOVIR BY DOE IMPLEMENTATION**

K.Soujanya\*

Srinivasa Institute of Pharmaceutical Sciences. Proddatur, A.P, India – 516361

\*Corresponding Author E-mail address: [Souji266@gmail.com](mailto:Souji266@gmail.com)

### **ABSTRACT**

Recent scientific and patent literature shows increased interest in academics & industrial research groups regarding novel dosage forms that can be retained in the stomach for prolonged & predictable period of time and the most feasible approach for this is to control the gastric residence time using gastro-retentive dosage forms which will provide new & important therapeutic option but the problem can arise if there is a narrow window for drug absorption in the GIT or drug is unstable in the intestinal fluid. So the development of oral controlled dosage form is not just to prolong the drug release but also to ensure the presence of dosage form in the stomach or upper GIT so that drug is released and absorbed for the desired period of time. Valacyclovir was used with various ingredients like HPMC K15, HPMC K4M, Eudragit, MCC 102 and Aerosil. The tablets were prepared by wet granulation method. Fourier-transform infrared (FTIR) studies of the prepared tablets and the drug and the excipients showed compatibility. Observations of all formulations for physical characterization had shown that, all of them comply with the specifications of official pharmacopoeias and/or standard references. Results of in-vitro release profile indicated that formulation (F7) was the most promising formulation as the extent of drug release from this formulation was high as compared to other formulations. DoE is implemented by applying 2 level 3 factor full factorial design by using Design Expert software version 7. From DoE studies it were showed that as increase in concentration of Eudragit, MCC 102 and HPMC the drug release also increased and by maintaining the concentrations in required range the extended release is shown.

**KEYWORDS:** Valacyclovir, Extended Release tablets, Evaluation, DoE implementation

## **A REVIEW ON CONTROLLED RELEASE FLOATING DRUG DELIVERY SYSTEMS IN PHARMACEUTICAL FORMULATIONS**

G. Govardhini<sup>\*1</sup>, Dr. Sarad Pawar Naik. B<sup>2</sup>

<sup>\*1</sup>B. Pharm., 4<sup>th</sup> Year II - Semester, Rao's College of Pharmacy, Nellore, A P – 524 002.

<sup>2</sup>Associate Professor & HOD, Department of Pharmaceutics, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [9961080@gmail.com](mailto:9961080@gmail.com)

### **ABSTRACT**

Over the years there has been available a variety of drug modification and dosage forms, with which we have attempted to control the time course and specificity of drugs in the body maximize drug utilization, it is necessary to deliver the drug to its target tissue in the correct amount at the proper time to elicit the desired response. The most convenient method of controlled delivery of drug is undoubtedly oral, which has not been successful with conventional approaches. Consequently, most research efforts have been focused on platforms to extend gastric residence time of these drugs. The novel design of Oral Controlled Drug Delivery System should be primarily aimed at achieving a more predictable and increased bioavailability of drugs. However, the development process is precluded by several physiological difficulties, such as inability to restrain and localize controlled drug delivery systems within the desired regions of the gastrointestinal (GI) tract and highly variable nature of the gastric emptying process. Thus, conventional OCDDS has not been suitable for a variety of important drugs which has any of above mentioned characteristics, which is mainly due to the relatively short transit time of the dosage form in the stomach and upper part of small intestine. The overall results are accompanied by lesser bioavailability. Furthermore, the relatively brief gastric emptying time in humans, which normally range from 2 - 3 hours through the major absorption zone (stomach or upper part of intestine), can result in incomplete drug release from the dosage form leading to diminished efficacy of the administered dose. Thus, control of placement of drug delivery system in a specific region of the GI tract offers numerous advantages. From the formulation and technological point of view, the Floating Drug Delivery System (FDDS) is considerably an easy and logical approach in the development of gastro retentive dosage forms. Hence in the present study, the formulation of Gastro Retentive Dosage Forms (GRDFs) is done by FDDS.

**KEYWORDS:** Floating Drug Delivery System (FDDS), Controlled Drug Delivery Systems (CDDS), Gastro Retentive Dosage Forms (GRDFs) and Gastrointestinal (GI) tract.

*P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY, KADAPA, A.P.*

## **IN-VITRO DISSOLUTION COMPARITIVE STUDY OF DIFFERENT BRANDS OF METFORMIN HYDROCHLORIDE TABLETS**

**K. Penchalaiah<sup>\*1</sup>, Dr. Sarad Pawar Naik. B<sup>2</sup>**

<sup>\*1</sup>B. Pharm., 4<sup>th</sup> Year II - Semester, Rao's College of Pharmacy, Nellore, A P – 524 002.

<sup>2</sup>Associate Professor & HOD, Department of Pharmaceutics, Rao's College of Pharmacy, Nellore, A P – 524  
320.

\*Corresponding Author E-mail address: [chinubpharm2014@gmail.com](mailto:chinubpharm2014@gmail.com)

### **ABSTRACT**

Tablets are solid dose pharmaceutical preparation containing drug substances usually prepared with the aid of suitable pharmaceutical excipients. The widespread use of tablets has been achieved as a result of their convenience and also the diversity of tablet types. Diabetes mellitus commonly referred to as diabetes is a disease of the pancreas, an organ behind the stomach that produces the hormone insulin. Dissolution is the primary quality control test to determine whether a drug product can release its active pharmaceutical ingredients in a timely manner. A dissolution test is a means of identifying and proving the availability of active drug materials in their delivered form. The aim of the present study was to evaluate and compare dissolution pattern of locally branded drug products of Metformin Hydrochloride. The Comparative dissolution testing is a tool in drug development and characterization. In addition, routine quality control tests and comparative dissolution tests have been used to support waivers for bioequivalence requirements, for approval of generic drug products and accepting product sameness under Scale-up and Post Approval (SUPAC) related changes. Metformin hydrochloride is a biguanide antihyperglycemic agent used in the treatment of non-insulin-dependent diabetes mellitus not responding to dietary modification. Metformin improves glycemic control by improving insulin sensitivity and decreasing intestinal absorption of glucose. Metformin decreases intestinal absorption of glucose, increases distribution of glucose from the blood into the tissues, decreases the production of glucose in liver and decreased insulin requirements for glucose disposal. Metformin is not effective in absence of insulin and it has no effect on pancreatic insulin secretion.

**KEY WORDS:** Metformin Hydrochloride tablets, Diabetes Mellitus (DM) Type II, Comparative dissolution testing, Antihyperglycemic agent.

## **INNOVATIONS IN PARENTERAL AND INHALATION DRUG DELIVERY SYSTEMS**

JVDS Neha\*, J. Suryakumar, M. Vidyavathi

\* Institute of Pharmaceutical Technology, Sri Padmavathi Mahila Visvavidyalayam,

Tirupati, AP.

\*Corresponding Author E-mail address: [nehajayanthi@yahoo.com](mailto:nehajayanthi@yahoo.com)

### **ABSTRACT**

Innovative products in Novel Drug Delivery Systems (NDDS) often take care of unmet needs of modern medicine. NDDS are developed for different diseases to administer by various routes of administrations based on interdisciplinary approaches that combine polymer science, pharmaceutics, chemistry, and molecular biology. Some of the advantages of NDDS include increased efficacy of the drug, site specific delivery, reduced toxicity & side effects, improved patient convenience and compliance. Recently, NDDS are developed for parenteral and inhalation route of administration to obtain the above advantages, among which the first one is “**ABILIFY MAINTENA KIT**” an intra-muscular suspension of Aripiprazole (400 mg) for extended release, to be administered once monthly for treatment of schizophrenia and bipolar disorders in adults. It offers flexibility in dosing and administration. It is available in a prefilled, dual chamber syringe and vial kit to maintain blood concentrations within therapeutic levels throughout the month. Thus, it increases patient compliance with once monthly injection compared to conventional aripiprazole tablets which are to be administered once daily. Another one is an inhalable form of delivery system “**AFREZZA**” a rapid acting insulin inhalable delivery system to treat type 1 and type 2 diabetes. After inhaling AFREZZA, insulin passes quickly through the lungs and enters the blood stream in less than one minute and reduces the blood sugar in 12 minutes. Major advantage associated with this product is avoiding of painful injection as patient can inhale this insulin just before meals. The patient can take the insulin based on his insulin need. Hence, it can be concluded that this novel parenteral and inhalation drug delivery systems improve the patient compliance which is a major challenge for psychological and geriatric patients.

**KEY WORDS:** Parenteral innovations, monthly intra muscular injection, insulin, inhalation

## **HYDROGELS: A SMART DRUG DELIVERY SYSTEM IN THE PHARMACEUTICAL WORLD**

R. P. Sanghvi<sup>1</sup>, E. Sujitha<sup>1</sup>, P. Surekha<sup>1</sup>, Dr. Sai Theja Guduru\*,

<sup>1</sup>III<sup>rd</sup> year pharm. D, Jagan’s college of pharmacy, Nellore, Andhra Pradesh, India.

\*Assistant Professor, Jagan’s college of Pharmacy, Nellore, Andhra Pradesh, India.

\*Corresponding Author E-mail address: [sanghaviparasuramanreddy@gmail.com](mailto:sanghaviparasuramanreddy@gmail.com)

### **ABSTRACT**

Hydrogels are three-dimensional, cross-linked networks of water-soluble polymers. Hydrogels can be made from virtually any water-soluble polymer, encompassing a wide range of chemical compositions and bulk physical properties. It is a network of polymer chains that are water-insoluble, occasionally found as a colloidal gel in which water is the dispersion medium. Hydrogels are cross-linked polymer networks that absorb significant amounts of aqueous solutions. Due to their high water content, these gels be like natural living tissue more than any other type of synthetic biomaterial. Several techniques have been reported for the synthesis of hydrogels like co polymerization/cross-linking of co-monomers using multifunctional co-monomer, which acts as cross-linking agent. Chemical initiator initiates the polymerization reaction. Some applications are used of hydrogels in human body. Some ecological variables, such as low pH and elevated temperatures, are found in the body. For this reason, either pH-sensitive and/or temperature responsive hydrogels can be used for site-specific controlled drug delivery. Hydrogels that are responsive to specific molecules, such as glucose or antigens, can be used as biosensors as well as drug delivery systems. New synthetic methods have been used to prepare homo- and co-polymeric hydrogels for a wide range of drugs, peptides, and protein delivery applications. The aim of this article is to present a concise review on the applications of hydrogels in the pharmaceutical field, hydrogel properties, and method of preparation of hydrogel, advantages and disadvantages of hydrogel.

**KEYWORDS:** Hydrogel, drug delivery, polymer.

## **SOLID LIPID NANOPARTICLES - A NOVEL CARRIER FOR THE TREATMENT OF GLAUCOMA**

E. Sujitha\*<sup>1</sup>, C. Senthil Kumar<sup>1</sup>, R. Prema<sup>2</sup>, G. Gokula Priyan<sup>1</sup> and M. Alagusundaram<sup>1</sup>

<sup>1</sup>Department of Pharmaceutics, Jagan's College of Pharmacy, Nellore – 524 346, Andhra Pradesh.

<sup>2</sup>Department of Pharmaceutics, Jagan's Institute of Pharmaceutical Sciences, Nellore -524 346, Andhra Pradesh.

\*Corresponding Author E-mail address: [nanosenthilkumar@gmail.com](mailto:nanosenthilkumar@gmail.com)

### **ABSTRACT**

Glaucoma is the term used for a group of ophthalmic disorders characterized by an increase in intraocular pressure (IOP), which results in a damage to the optic disc and visual field disturbances. Glaucoma is undiagnosed in 50% of the cases in the western world. Solid Lipid Nanoparticles are especially useful in ocular drug delivery as they can enhance the corneal absorption of drugs and improve the ocular bioavailability of both hydrophilic and lipophilic drugs. Small molecules can be entrapped within the lipid matrix of the nanoparticles by dissolving or dispersing the material in the molten lipid prior to particle formation. SLNs would be a potential delivery carrier for ocular delivery with the advantages of a more intensive treatment for glaucoma, lower in doses and better patient compliance compared to the conventional eye drops. Marketed available ocular delivery systems such as ointments, eye drops and ophthalmic gel investigated during the past decades due to limited permeability of anterior ocular surface, natural clearance and drainage and contain large amounts of inactive ingredients. SLNs could be applied in liquid form like eye drop solutions, wherein the very small sized drug particles could intimately contact the absorbing tissue, thus rising the probability of ocular absorption and bioavailability. The SLNs could decrease the tear and drainage of instilled dose, maximizing the drug residence at its site of action. The lipids enhances the corneal penetration of the drug and surfactants present in SLNs surface, which could change the interfacial properties of the carrier and thus, certainly influencing the mucoadhesion and improve the drug permeation. Hence, the potential effect of SLNs as novel therapeutic system for topical administration to treat glaucoma is significant.

**KEYWORDS:** Glaucoma, Solid Lipid Nanoparticles, Ocular bioavailability, Corneal permeation and Novel therapeutic system.

## **FLOATING DRUG DELIVERY SYSTEM: A REVIEW**

T M Hemanth<sup>\*1</sup>, Dr. Sarad Pawar Naik. B<sup>2</sup>

<sup>\*1</sup>B. Pharm., 4<sup>th</sup> Year II - Semester, Rao's College of Pharmacy, Nellore, A P – 524 002.

<sup>2</sup>Associate Professor & HOD, Department of Pharmaceutics, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [tmhemanath26@gmail.com](mailto:tmhemanath26@gmail.com)

### **ABSTRACT**

The main goal of any drug delivery system is to achieve desired concentration of the drug in blood or tissue, which is therapeutically effective and non-toxic for a prolonged period. Various attempts have been made to develop gastroretentive delivery systems such as high density system, swelling, floating system. The recent developments of FDDS including the physiological and formulation variables affecting gastric retention, approaches to design single-unit and multiple-unit floating systems and their classification and formulation aspects are covered in detail. This review also summarizes the studies to evaluate the performance and application of floating systems, and applications of these systems. Gastric emptying is a complex process and makes in vivo performance of the drug delivery systems uncertain. In order to avoid this variability, efforts have been made to increase the retention time of the drug-delivery systems for more than 12 hours. The floating or hydrodynamically controlled drug delivery systems are useful in such application.

**KEY WORDS:**Floating, gastrointestinal, gastro retentive system, evaluation.



## **DEVELOPMENT AND CHARACTERIZATION OF SUSTAINED RELEASE MATRIX TABLETS OF DICLOFENAC SODIUM**

Yasoda.K<sup>\*1</sup>, Dr. Sarad Pawar Naik. B<sup>2</sup>

<sup>\*1</sup>B. Pharm., 4<sup>th</sup> Year II - Semester, Rao's College of Pharmacy, Nellore, A P – 524 002.

<sup>2</sup>Associate Professor & HOD, Department of Pharmaceutics, Rao's College of Pharmacy, Nellore, A P – 524 320.

\*Corresponding Author E-mail address: [yashodakanakaraj2528@gmail.com](mailto:yashodakanakaraj2528@gmail.com)

### **ABSTRACT**

The US FDA defined sustained release dosage form as one that allows a reduction in dosing frequency from that necessitated by a conventional dosage form, such as solution or an immediate release dosage form. For orally administered dosage forms, Sustained release action is achieved by affecting the rate at which drug release forms the dosage forms and or by slowing the transit time of the dosage forms through the gastro intestinal tract. Main objective of sustain release matrix tablets of diclofenac sodium was to develop more acceptable dosage form. To formulate sustained release tablets of diclofenac sodium by using natural gum obtained from to improve its orally bioavailability and to reduce its dosing frequency. Diclofenac Sodium is prototypical NSAID, a phenyl acetic acid derivative structurally related to meclofenamate sodium and mefenamic acid that was developed specifically as an anti-inflammatory agent. Diclofenac has analgesic, antipyretic and anti-inflammatory activities. Its potency against cyclooxygenase-1 (COX-1) and COX-2s is substantially greater than that of several other NSAIDs. Diclofenac is used to treat pain, dysmenorrhea, ocular inflammation, osteoarthritis, rheumatoid arthritis, ankylosing spondylitis and actinic keratosis.

**KEY WORDS:** Sustained Release Matrix Tablets, Diclofenac Sodium, Anti-inflammatory agent, Rheumatoid arthritis.

## **INFLUENCE OF NANOTECHNOLOGY ON HERBAL DRUGS**

P. Kanishka<sup>1</sup>, C.S. Harshitha<sup>2</sup>, K. Yalla reddy\*,

\*Associate Professor, Principal, Jagan's college of Pharmacy, Nellore, Andhra Pradesh, India.

<sup>1,2</sup>Jagan's college of pharmacy, Nellore, Andhra Pradesh, India.

\*Corresponding Author E-mail address: [panneerselvamkanishkap@gmail.com](mailto:panneerselvamkanishkap@gmail.com)

### **ABSTRACT**

Herbal medicines have been widely used all over the world since ancient times and have been recognized by physicians and patients for their better therapeutic value as they have fewer adverse effects as compared with modern medicines. Phytotherapeutics need a scientific approach to deliver the components in a sustained manner to increase patient compliance and avoid repeated administration. This can be achieved by designing novel drug delivery systems (NDDS) for herbal constituents. NDDSs not only reduce the repeated administration to overcome non-compliance, but also help to increase the therapeutic value by reducing toxicity and increasing the bioavailability. One such novel approach is nanotechnology. Nano-sized drug delivery systems of herbal drugs have a potential future for enhancing the activity and overcoming problems associated with plant medicines. Hence, integration of the nanocarriers as a NDDS in the traditional medicine system is essential to conflict more chronic diseases like asthma, diabetes, cancer, and others.

**KEYWORDS:** Herbal drugs, nanotechnology, novel drug delivery systems, diabetes etc.

## **RESEALED ERYTHROCYTES A NOVEL CARRIER FOR TARGETTED DRUG DELIVERY SYSTEM**

C.Praneeth kumar\*, S.Gousia Begum,

Department of Pharmaceutics, Santhiram college of Pharmacy, Nerawada, Nandyal

\*Corresponding Author E-mail address: [dastu1984@gmail.com](mailto:dastu1984@gmail.com)

### **ABSTRACT**

Now a days there are numerous applications have been proposed for the use of resealed erythrocytes as carrier for drugs, enzyme replacement therapy etc. Until other carrier systems come of age, resealed erythrocytes technology will remain an active field for the further research. The use of resealed erythrocytes shows potential for a safe and effective delivery of various bioactive molecules for effective targeting. In coming future, erythrocyte based drug delivery system with their capability to afford controlled and site specific drug delivery have been developed for disease management. Erythrocyte carriers are “Nano devices in the field of Nanotechnology”. A large amount of valuable work is needed so as to utilize the potentials of erythrocytes in passive as well as active targeting of drugs in diseases like cancer. At present erythrocytes are most effective carriers in novel drug delivery systems considering their tremendous potential. Hence the present article is reviewed about method of drug loading, evaluation and applications of RSE.

**KEY WORDS:** Resealed Erythrocytes, Targeted drug delivery system.

## **MAGNETIC RESONANCE GUIDED FOCUSED ULTRA SOUND FOR TARGETTING BRAIN TUMOUR THERAPY**

S.Nadimulla \*, S.Gousia Begum, K.Sampath Kumar

Department of Pharmaceutics, Santhiram College of Pharmacy, NH-40, Nerawada, Nandyal

\*Corresponding Author E-mail address: [s.nadimulla123456789@gmail.com](mailto:s.nadimulla123456789@gmail.com)

### **ABSTRACT**

Magnetic resonance-guided focused ultrasound (MRgFUS) has been used extensively to ablate brain tissue in movement disorders, such as essential tremor. At a lower energy, MRgFUS can disrupt the blood-brain barrier (BBB) to allow passage of drugs. This focal disruption of the BBB can target systemic medications to specific portions of the brain, such as for brain tumors. Current methods to bypass the BBB are invasive, as the BBB is relatively impermeable to systemically delivered antineoplastic agents. Multiple healthy and brain tumor animal models have suggested that MRgFUS disrupts the BBB and focally increases the concentration of systemically delivered antitumor chemotherapy, immunotherapy, and gene therapy. Liposomes, modified microbubbles, and magnetic nanoparticles, combined with MRgFUS, more effectively deliver chemotherapy to brain tumors. MRgFUS has great potential to enhance brain tumor drug delivery, while limiting treatment toxicity to the healthy brain.

**KEY WORDS:** Brain tumor, Magnetic resonance, Blood brain Barrier

## **FORMULATION AND EVALUATION OF ANTI-PSORIATIC GEL USING GREEN TEA AND BLACK SEED OIL**

**B. Sunitha \***

Dept of pharmaceutics, Santhiram College of Pharmacy, Nandyal.

\*Corresponding Author E-mail address: [sunithachittepu45@gmail.com](mailto:sunithachittepu45@gmail.com)

### **ABSTRACT**

The present research work was conducted to formulate and evaluate anti-psoriatic gel using green tea and black seed oil. The formulation was thickened with a gelling agent carbapol 940 to yield a gel with desirable properties facilitating the topical application. The developed topical gel formulations of green tea and black seed oil were analyzed for topical permeability using Franz diffusion cell through excised rat skin. The physico chemical compatability between green tea and black seed oil and other excipients was confirmed by using fourier transform infrared spectroscopy. All prepared gel formulations were evaluated for drug content uniformity, viscosity, pH and stability.

**KEYWORDS:** Anti-psoriatic, Green tea, Black seed oil, Transform infrared spectroscopy.

## **CONCEPTION AND INVITRO EVALUATION OF TINIDAZOLE MUCOADHESIVE BUCCAL GEL**

B.Sucharitha\*, S.Gousia Begum, C.Madhusudhana Chetty

Department of Pharmaceutics, Santhiram College of Pharmacy, Nandyal, A.P

\*Corresponding Author E-mail address: [suchibyreddy44@gmail.com](mailto:suchibyreddy44@gmail.com)

### **ABSTRACT**

In the present work mucoadhesive gels of Tinidazole that adhere with gums for an extended time period were prepared and evaluated. Tinidazole (TZ) is an antibacterial drug used for treatment of Periodontitis. Different gel formulations were prepared using the bio adhesive polymers like carbopol 974, sodium alginate and sodium carboxy methyl cellulose. The other additives used are triethanolamine as an emulsifier and surfactant, glycerol as a means of improving smoothness, providing lubrication and as humectants, mannitol as the isotonic agent and methylparaben as a preservative. The physicochemical compatibility of the drug and the polymer was assessed by FTIR spectroscopy. The prepared gels were evaluated for various parameters like viscosity, pH, drug content, swelling index, spreadability and ex vivo drug permeation. Release of Tinidazole from the gels formulated by employing carbopol 974 extended the drug release up to 6hrs. So the formulations F7, F8, and F9 were found to be optimized formulae.

**KEYWORDS:** Tinadazole, Mucoadhesive Buccal gels, Periodontitis and Ex- Vivo drug permeation

## **NANOPARTICLES FOR OCULAR DRUG DELIVERY SYSTEM**

K. Mamatha\*, S.Gousia Begum, C.Madhusudhana chetty, Y.Dastagiri reddy ,V.Vijay kumar

Department of Pharmaceutics, Santhiram College of Pharmacy, Nandyal, A.P

\*Corresponding Author E-mail address: [kollimamathareddy03@gmail.com](mailto:kollimamathareddy03@gmail.com)

### **ABSTRACT**

Commercially available ocular drug delivery systems are effective but less efficacious to manage diseases/disorders of the anterior segment of the eye. Recent advances in nanotechnology and molecular biology offer a great opportunity for efficacious ocular drug delivery for the treatments of anterior segment diseases/disorders. Nanoparticles have been designed for preparing eye drops or injectable solutions to surmount ocular obstacles faced after administration. Better drug pharmacokinetics, pharmacodynamics, non-specific toxicity, immunogenicity, and bio recognition can be achieved to improve drug efficacy when drugs are loaded in the nanoparticles. Despite the fact that a number of review articles have been published at various points in the past regarding nanoparticles for drug delivery, there is not a review yet focusing on the development of nanoparticles for ocular drug delivery to the anterior segment of the eye. This review fills in the gap and summarizes the development of nanoparticles as drug carriers for improving the penetration and bioavailability of drugs to the anterior segment of the eye.

**KEYWORDS:** Nanoparticles, ocular barriers, poly(alkyl cyanoacrylate), polysaccharide, polyester, EUDRAGIT<sup>®</sup>, lipid, dendrimer, contact lenses

## RECENT ADVANCES IN LIPOSOMAL DRUG DELIVERY SYSTEM

Kypa Jyothsna\*, S.Gousia Begum, S.Susma Priya

Department of Pharmaceutics, Santhiram College of Pharmacy, Nandyal, A.P

\*Corresponding Author E-mail address: [kypajyothsna24@gmail.com](mailto:kypajyothsna24@gmail.com)

### ABSTRACT

Liposomes are a novel drug delivery system (NDDS). They are vesicular structures consisting of bilayers which form spontaneously when phospholipids are dispersed in water. They are microscopic vesicles in which an aqueous volume is entirely enclosed by a membrane composed of lipid bilayers. NDDS aims to deliver the drug at a rate directed by the needs of the body during the period of treatment and direct the place of action. Liposomes are colloidal spheres of cholesterol, non-toxic surfactants, sphingolipids, glycolipids, longchain fatty acids and even membrane proteins and drug molecules in it, thus they are called vesicular systems. It differs in size, composition and charge. Drug carrier can be loaded with a variety of molecules such as small drug molecules, proteins, nucleotides or plasmids etc. Few drugs are formulated as liposomes to improve their therapeutic index. Hence a number of vesicular drug delivery systems such as liposomes, niosomes, transfersomes and pharmacosomes are developed. The focus of this work is to provide the various methods of preparation, characterization of liposomes, their advantages and applications.

**KEYWORDS:** Liposomes, Characterization, Drug delivery, Medicine, Stability



## **PREPARATION AND EVALUATION OF NIOSOMES CONTAINING ACECLOFENAC**

J. Balanarasimha Goud\*, V.Vijaya Kumar, K. Ravi Kumar , C.Madhusudhana Chetty  
Industrial Pharmacy, Santhiram College of Pharmacy, Nandyal

\*Corresponding Author E-mail address: [jnarasimha0024@gmail.com](mailto:jnarasimha0024@gmail.com)

### **ABSTRACT**

Aceclofenac is a drug with narrow therapeutic index and short biological half-life. This study was aimed at developing and optimizing niosomal formulation of aceclofenac in order to improve its bioavailability. In evaluation study, the effect of the varying composition of non ionic surfactant and cholesterol on the properties such as encapsulation efficiency, particle size and drug release were studied. Moreover, the release of the drug was also modified and extended over a period of 72 h in all formulations. NSF-3 emerged as the most satisfactory formulation so far as its properties were concerned. Further, release of the drug from the most satisfactory formulation NSF-6 was evaluated through dialysis membrane to get the idea of drug release. The mechanism of drug release was governed by Peppas model.

**KEYWORDS:** Niosomes, Aceclofenac, Cholesterol, Span 60, Dissolution.

## **OPTOGENETICS – A BRIEF REVIEW**

S. Ayub<sup>\*</sup>, S. Arshad, K. Nayeem khan, S. Rahath Fathima

P. Rami Reddy Memorial College of Pharmacy, kadapa, A.P.

\*Corresponding Author E-mail address: [syedcnr86@gmail.com](mailto:syedcnr86@gmail.com)

### **ABSTRACT**

Optogenetics (a branch of Biotechnology) is a biological tool used in the field of neuroscience that encompasses a combination of techniques from optics and genetics to study the functioning of individual neurons in a living tissue. It requires controlled optical source, method of delivering the light, genetically encoded indicators, electrical recording, etc. The present review highlights the brief history of Optogenetics, opsins- the functional unit in optogenetics, and the design of optogenetic experiments to study behavior in normal function of disease models. Once the particular opsins have been targeted to particular neuron, the next step is light delivery. Requirements for light deliver system vary widely for different experimental techniques. The photocurrent in a neuron generated by a pulse of light depends upon many factors, like the intensity, frequency, duration of the incident light, spectral distribution, etc. The review also discusses the limitations of the technique and its applications in various behavioural and neuropsychiatric disorders such as anxiety, fear, depression, addiction, autism, and Parkinsonism. Looking back at the rate of progress over the last few years, it is reasonable to predict and believe that the molecular techniques for optogenetics will continue to evolve rapidly and that the applications of these methods will continue to expand.

**KEYWORDS:** Optogenetics, Opsins, Neurons, Neural circuits.

## **SIGNIFICANCE OF NANOTECHNOLOGY AND IT'S IMPACT ON CONGENITAL HEART DISEASE (CHD)**

P. Fairoz Khan, S. Samiullah\*

P. Rami Reddy Memorial College of Pharmacy, Utukur, Kadapa, A.P.

\*Corresponding Author E-mail address: [samiullahsyed012@gmail.com](mailto:samiullahsyed012@gmail.com)

### **ABSTRACT**

Congenital heart disease (CHD), or a congenital heart defect, is a heart abnormality that effect heart walls, heart valves, blood vessels. CHDs can be caused by abnormal formation of heart during growth in womb and abnormality in chromosome number in babies. Out of several individuals examined, many were diagnosed with CHDs, giving a prevalence of 19.14 per 1000 individuals. For most of the cases, there is no identifiable cause for the heart defect and generally considered to be caused by “multifactorial inheritance”.The congenital heart defect are classified into two major types which includes cyanotic (blue baby) and acyanotic (pink baby), which requires strict medical supervision and demands various dosage forms that meets the required predetermined clinical attributes. The current stringent requirements are met through nanotechnology that empowers the drug targeting and serves as a platform for technical investigation in this era. The nanotechnology serves as a barrier in transporting functional elements such as stem cells, growth factors and other therapeutics substances to the targeting site, its regeneration and electrical conductivity. The incorporation of robotic surgeries in the current field elicits miscellaneous advantages such as reduction in rate of infection, blood loss etc. Thus, nanotechnology plays a promising role in fabricating novel drug delivery systems and paved the way for technical investigations.

**KEYWORDS:** Congenital heart defect, Nanotechnology, Cyanotic congenital heart defect, Acyanotic congenital heart defect

## **3D-FUTURE OF DRUG DELIVERY AND DEVICES**

Akhila\*

Dept of pharmaceuticals, Santhiram College of Pharmacy, Nandyal.

\*Corresponding Author E-mail address: [angajalaakhila22@gmail.com](mailto:angajalaakhila22@gmail.com)

### **ABSTRACT**

Three-dimensional (3D) printing is a manufacturing method in which objects are made by fusing or depositing materials in successive layers laid down under computer control. These objects can be of almost any shape or geometry and are produced from a 3D model as defined in a computer-aided design (CAD). Since the inception of 3D printing in 1984, it has evolved immensely and has been used in many fields including medicine, architecture and more recently in pharmaceutical manufacturing. From lab grown organs to drug delivery devices, 3D printing is advancing rapidly and in future course of time it is going to transform and change the way we live and work. 3D printing in pharmaceuticals has been used to produce many novel dosage forms like microcapsules, Complex Drug-Release Profiles, nano-suspensions, and multilayered drug delivery devices. From industrial point of view it also offers important advantages like, cost-effectiveness, increased productivity, democratization of design and manufacturing, and enhanced collaboration. Keeping in view the recent approval given by USFDA to the first 3D printed antiepileptic drug the focus has now shifted to the personalized medicine as it offers an important benefit to patients who need medications that have narrow therapeutic indices or a higher predilection to be influenced by genetic polymorphisms. 3D printer is now seen as a valuable, efficient and economical tool to manufacture individualized medications, tailored to specific patients based on their needs and thereby change the future of pharmacy practice in general and pharmaceutical care in particular

**KEYWORDS:** Three dimensional printing; manufacturing; personalized medicine; USFDA.

## **FORMULATION AND EVALUATION OF FLUNARIZINE DIHYDROCHLORIDE MOUTH DISSOLVING ORAL FILMS**

M.Anitha\*, Y. Dastagiri Reddy.

Department of Pharmaceutics, Shantiram college of pharmacy Nandyal.

\*Corresponding Author E-mail address: [madavaramanitha2@gmail.com](mailto:madavaramanitha2@gmail.com)

### **ABSTRACT**

Fast dissolving films have been played an important role in the current pharmaceutical research. They have convenience and ease of use over the other dosage forms such as orally disintegrating tablets and immediate release tablets. In the present research rapidly dissolving films of flunarizine dihydrochloride were developed using low viscosity grades of HPMCE50LV, CMC as film forming polymers. HPMCE50LV, CMC is a water soluble synthetic polymer which was used as a film former. The films of flunarizine dihydrochloride were prepared by solvent casting method using ethanol as solvent. The prepared films were evaluated for drug content, weight variation, thickness, pH and invitro disintegration time. Flunarizine dihydrochloride is a hypertensive drug; Taste masking was achieved by use of sweeteners, flavours and sodium saccharin. The invitro dissolution time of the optimized formulation was carried at 30, 60, 90, 120, 150, 180 seconds respectively. The prepared film exhibited good integrity and thickness. Invitro dissolution studies were performed as per the FDA dissolution guidelines for about 3min. The optimum formulation released complete drug with in 2.5min.

**KEYWORDS:** Flunarizine dihydrochloride, CMC, HPMC, Synthetic polymers, sweeteners, flavours.

## **FORMULATION AND EVALUATION OF PANTOPRAZOLE SODIUM FLOATING HYDROGELS**

K.Shanthi\*, A.Sujatha, Y.Dastagiri reddy, K.Sampath Kumar, D.Maheshwar Reddy

Department of Pharmaceutics, Santhiram college of Pharmacy, Nandyal, A.P

\*Corresponding Author E-mail address: [kurvashanthi@gmail.com](mailto:kurvashanthi@gmail.com)

### **ABSTRACT**

The present investigation describes to develop floating hydrogels of Pantaprazole Sodium using hydrophilic polymers like HPMC K100M, HPMC K4M, and HPMC E50LV, Sodium alginate as gelling agent, sodium bicarbonate as gas generating agent, using continuous stirring method. Twelve formulations were performed in this study. Physical observation at room conditions (temp, RH) and Fourier transform infrared spectroscopy (FTIR) concluded that no chemical interaction between drug and excipients used. Prepared floating hydrogels were evaluated for various evaluation parameters like pH, gelation studies, viscosity studies, drug content studies, swelling index, floating lag time studies, and *in-vitro* drug release. Dissolution studies were carried out in 0.1N HCl upto 12 hrs. In this investigation it is confirmed that the release rate from the floating hydrogels which are prepared by HPMCK4M and HPMCK100M shown better controlled release than others. The result of formulation F11 was 98.29% at the end of 12hrs. All formulations showed non- fickian diffusion controlled zero order kinetics.

**KEYWORDS:** Pantoprazole sodium, HPMC K4M, HPMCK100M, HPMCKE50 LV, Sodium alginate and floating Hydrogels.

## **FORMULATION AND EVALUATION OF PRAMIPEXOLE DIHYDROCHLORIDE EXTENDED RELEASE TABLETS**

M.Sirisha\*, Y.Dastagiri Reddy, D.Maheshwar Reddy, K.Sampath Kumar

Department of Pharmaceutics, Santhiram College of Pharmacy, Nandyal, Kurnool

\*Corresponding Author E-mail address: [sirishabpharm1640@gmail.com](mailto:sirishabpharm1640@gmail.com)

### **ABSTRACT**

In this study, extended release tablets of Pramipexole to be taken once daily were formulated and characterized. Formulation based on combination of different polymers like HPMC K4M and HPMC K100M as matrix polymers and Eudragit L100 as enteric polymer to achieve extended release and Carboxymethylcellulose sodium in varying concentrations were studied to get the desired release profile over a period of 24 h. The granules were prepared by wet granulation method and evaluated for angle of repose, bulk density, compressibility index, and Hausner's ratio. The granules showed satisfactory flow properties. The compressed tablets are evaluated for weight variation, hardness, friability, dimension and *In-Vitro* drug release using USP dissolution apparatus type 2 (paddle), using phosphate buffer pH 6.8 as dissolution medium. Formulation (F9) containing Na CMC (10%) and both MCC PH101, MCC PH102 as diluents gave the desired release for once a day administration. The drug release was found to be following Higuchi release pattern. In-vitro release pattern of drug from the optimized formulation, F9 was found to similar (i.e. the similarity factor  $f_2$  was found to be 66.43) with the marketed product MIRAPEX XR. The results have shown that the tablets of F9 formulation could be suitable candidates for the effective treatment of Parkinson's disease as once daily formulation.

**KEYWORDS:** Pramipexole dihydrochloride, Parkinson's disease, Extended release, wet granulation

## **PREPARATION AND EVALUATION OF GLIBENCLAMIDE-ALGINATE MICROSPHERES**

**SN.Priyanka\*, C.Madhusudhana Chetty, Y. Dastagiri reddy, D.Maheshwara Reddy**

**Department of Pharmaceutics, Santhiram College of Pharmacy, Nandyal, A.P.**

\*Corresponding Author E-mail address: [applenenavathrathod@gmail.com](mailto:applenenavathrathod@gmail.com)

### **ABSTRACT**

Glibenclamide is an oral hypoglycemic agent used in the treatment of non-insulin dependent diabetes. It is a weak acid and is poorly soluble in water. In the present study microspheres were prepared by ionic cross-linking technique. Chemical reaction between sodium alginate and calcium chloride to form calcium alginate was utilized for microspheres. For slowing the rate of release from microspheres, Eudragit RS100 and Xanthan gum combinations were added according to 3<sup>2</sup> factorial design so that the drug will be released constantly for 12hrs. The prepared microspheres were characterized in terms of drug-excipient compatibility study, percentage yield, micromeritics study, swelling index, particle size analysis, shape analysis, drug content, drug encapsulation efficiency and *in-vitro* drug release study. To analyze the mechanism of drug release from the tablets, the *In-vitro* dissolution data of optimized formulations were fitted to zero order, first order, Higuchi release model and Korsmeyer-Peppas model based on regression coefficient. The *n* values of the optimized formulations F-8 and F-7 were 0.572 and 0.548 respectively. This indicates the release of drug followed Non Fickian or anomalous transport. Results signified the fact that, microspheres formed has sufficient good surface and size to be utilized as a dosage form responsible for slow release of drug from matrix through erosion. Among all the nine batches formed. F8 was selected as the optimized batch in terms of all parameters evaluated.

**KEY WORDS:** Glibenclamide, Ionic cross-linking technique, Eudragit RS100, Xanthan gum.



## **MEDICATED CHEWING GUMS – AN OVERVIEW**

S.R.Harish\*, S.Farooq Ahamed, S.khaja Azeem Ali, PAM.Sucharitha

P. Rami Reddy Memorial College Of Pharmacy, Kadapa, A.P.

\*Corresponding Author E-mail address: [harishsrh3@gmail.com](mailto:harishsrh3@gmail.com)

### **ABSTRACT**

Now a days, there is increased interest on the formulation of oral delivery systems the reason behind this the ease of administration offered by oral route. Besides its ease, oral route offers a variety of advantages over others. Medicated chewing gum is one the technological advancement in the field of oral drug delivery system. In recent years, chewing gums gained increased acceptability among the patients because of its advantages like local and systemic effects, avoidance of first pass metabolism, fast action with fewer side effects etc. Chewing gums provide feasibility of removing the chewed mass from the oral cavity at times needed without any invasive means. Medicated chewing gums uses a gum base into which other additives like elastomers, plasticizers, softeners, filler, colours, flavours, sweeteners and ofcourse an active drug are incorporated. They provide a beautiful means of self medication and can be administered anytime, anywhere without need of water. Drug release from the chewing gums is directly proportional to the extent we chew the gum mass in the oral cavity. Thus, in near future we may find various drugs formulated in the form of chewing gums. The current review presents a brief idea on the history, advantages, composition, manufacturing and evaluation of medicated chewing gums.

**KEYWORDS:** Chewing gum, gum base, Plasticizers, Elastomers, Mucosa, Saliva.

## **DESIGN AND *IN VITRO* EVALUATION OF MELT-IN MOUTH TABLETS OF PROPRANOLOL HYDROCHLORIDE**

S.Shafi,\*, Y.Dastagiri Reddy, C.Madhusudhana chetty, D.Maheshwar Reddy, V.Vijay Kumar, S.Gousia  
Begum

Department of Pharmaceutics, Santhiram College of Pharmacy, Nandyal, A.P

\*Corresponding Author E-mail address: [shafikhan.sk623@gmail.com](mailto:shafikhan.sk623@gmail.com)

### **ABSTRACT**

Melt-in mouth tablets dissolve rapidly in the mouth to be swallowed without the aid of water. The aim of the present investigation is to formulate melt-in mouth tablets of propranolol Hcl, a non selective  $\beta$  blocker and an important drug in the treatment of hypertension & other cardiovascular disorders and water soluble, by direct compression method. Ten formulations of melt-in mouth tablets of Propranolol Hcl were prepared using, sodium starch glycolate, crospovidone, croscarmellose sodium and kyron T-314 as superdisintegrants at different concentrations. The prepared batches were evaluated for hardness, friability, weight uniformity, content uniformity, water absorption test, *in vitro* dispersion time, wetting time, *in vitro* drug release, and stability studies. No chemical interaction between drug and excipients was confirmed by FT-IR studies. The accelerated stability study was conducted as per the ICH guidelines and the formulation was found to be stable with insignificant changes in hardness, drug content, disintegration time, and drug release. All formulations have shown almost complete release of drug within 12 minutes. Tablets prepared using kyron T-314 4% showed minimum time to disintegrate (24sec.) and maximum release of drug (98.2%) within 8 minutes. Though the drug is water soluble, because of its log p (3.0) value it can better undergo pregastric absorption. Further, it can be reasonably expected that the obtained formulation may result in an increase of its bioavailability, with the possibility of reducing drug dosage and side effects. Finally it was concluded that melt-in mouth tablets of Propranolol Hcl can be successfully formulated by superdisintegrant addition method with improved patient compliance.

**KEYWORDS:** Melt-in mouth tablets, Propranolol Hcl, superdisintegrants, direct compression.

## **NOVEL CITRIC ACID DENDRITIC HYDROGELS FOR THE DELIVERY OF ECONAZOLE NITRATE AND ITS ANTIFUNGAL ACTIVITY**

Vishnu priyanka\*, S. Rahath Fathima

PRRM College of Pharmacy, Prakruthi Nagar, Utukur, Kadapa, A.P., India.

\*Corresponding Author E-mail address: [vishnupriyanka48@gmail.com](mailto:vishnupriyanka48@gmail.com)

### **ABSTRACT**

Econazole is an imidazole derivative antifungal drug with distinguished antifungal properties. But the bioavailability of conventional econazole preparations is poor because of poor solubility and lipophilicity or lipophilic nature. Thus frequent application of the preparation is required to maintain therapeutic levels at the site of action. Such repeated doses may produce toxic effects thereby limiting the clinical use of the drug. Citric acid dendrimers give an opportunity to overcome the above limitations by improving its solubilization and drug permeation properties. Thus, the aim of current study is to design citric acid dendrimer hydrogels and study its influence on the drug release and anti-fungal activity of loaded drug. Dendritic architecture and size strongly influences the invitro release and antifungal activity of drug. Antifungal activity of designed Econazole hydrogel was measured by Agar plate diffusion method. Zone of inhibition values showed that citric acid dendrimers considerably enhanced the antifungal activity of Econazole to a greater extent and the effect was more with lower generation hydrogels. The operative mechanism is probably the smaller size (G2) that penetrates the fungal cell membrane more efficiently than higher generation (G3 and G4) hydrogels.

**KEY WORDS:** Citric acid dendrimer, Econazole, Hydrogels, Antifungal activity, lipophilicity.

## **TRANSDERMAL DRUG DELIVERY SYSTEM**

S. Thaarani\*, A. Swetha, Dr.K.S.Priyanka, M.Niranjanbabu

Department of Pharmaceutics, Seven hills college of pharmacy, Venkataramapuram, Tirupati, Chittoor  
Dist, 517561, A.P.

\*Corresponding Author E-mail address: [thaarani0208@gmail.com](mailto:thaarani0208@gmail.com)

### **ABSTRACT**

Transdermal drug delivery system (TDDS) is one of the systems lying under the category of controlled drug delivery, these are in the form of patches applied topically which deliver drug for systemic effects through skin in a pre-determined and controlled rate. It has various advantages like prolonged therapeutic effects, less side effects, improved bioavailability and easy termination of drug therapy. Human skin of an average adult body covers a surface of approximately 2 square feet and receives about one-third of blood circulating through the body. Skin surface is known to contain average 10-70 hair follicles and 200-250 sweat ducts. The stratum corneum acts as a rate-limiting barrier in permeation of drug. Three main routes of drug penetration include appendageal, transcellular and intercellular routes. Skin age, condition, physicochemical factors and environmental factors need to be considered while delivery of drug through this route. Polymer matrix, drug and permeation enhancers are the main components of TDDS. Natural polymers include (zein, shellac, cellulose derivatives, gelatin, waxes and chitosan). Synthetic polymers include (polyvinylchloride, pyrrolidone, polysiloxane etc.). TDDS are of different types varying from single layer drug in adhesive to multi-layer drug in adhesive and others include reservoir and matrix systems. Over the past decades, developing controlled drug delivery has become increasingly important in pharmaceutical industry. TDDS is a new technology which has a potential limit in use of needles for administering wide variety of drugs but cost factor is an important thing to consider, since developing countries like India have second highest population, but due to high cost TDDS are hidden as therapy used in general population.

**KEY WORDS:** Skin, drug delivery, stratum corneum.

## **FORMULATION AND EVALUATION OF NICOTINE TRANSDERMAL PROCESS PATCHES BY USING OF HYDROPHILIC AND HYDROPHOBIC POLYMERS**

J. Sunayana\*

Santhiram College of Pharmacy, Nandyal, A.P., India.

\*Corresponding Author E-mail address: [sunayanajonnalagadda@gmail.com](mailto:sunayanajonnalagadda@gmail.com)

### **ABSTRACT**

The present investigation is to formulate matrix type Transdermal drug delivery system of a Nicotine using different polymers such as Ethyl cellulose, Eudragit RL 100 by solvent evaporation technique. The prepared patches were evaluated by Compatibility study, Physical appearance, Thickness uniformity, Weight uniformity, Tensile strength, Folding endurance, Percentage Moisture content, Percentage Moisture uptake, Water vapour transmission rate, Drug content uniformity, In vitro drug release studies. From the results of the drug content determination, it was assured that there was uniform distribution of drug in the patches and the deviations were within the acceptable limits. Release study of Nicotine patches indicated that the drug release from the formulation varies with the different compositions of polymers. Among all the prepared formulations, formulation containing PVA and EC (1:1) showed better drug release of  $76.76 \pm 1.83$  after 24 hrs. By reviewing the results obtained, on the basis of the in vitro characterization it was concluded that Nicotine can be administered transdermally through matrix type TDDS developed in our laboratory. Transdermal patches consisting of the polymers PVA and EC along with PEG 400 as plasticizer and Tween 80 as permeation enhancer demonstrated sustained release of the drug for 24 hrs.

**KEYWORDS:** Transdermal Patches, Nicotine, Plasticizer, solvent evaporation method.

## **DEVELOPMENT AND EVALUATION OF MOUTH DISSOLVING TABLETS OF MONTELUKAST SODIUM USING COPROCESSED EXCIPIENTS**

M.Sai Ganesh\*

Department of pharmaceuticals, Santhiram College of pharmacy, Nandyal, Kurnool.

\*Corresponding Author E-mail address: [malladisaiganesh05@gmail.com](mailto:malladisaiganesh05@gmail.com)

### **ABSTRACT**

The concept of formulating oral dispersible tablets containing montelukast sodium offers a suitable practical approach to achieve fast release of the drug. Absorption of these tablets takes place directly into the systemic circulation which avoids the hepatic first pass metabolism of montelukast sodium which ultimately results in the improvement in the bioavailability. In the present study ODT tablets of montelukast sodium were prepared by using different super disintegrants like natural and synthetic like tulasi, hibiscus and orange peel powder, banana peel powder. Thirteen formulations were designed, using higher and lower levels of superdisintegrants and employing two super disintegrants at a time by using coprocessed technique. In the FTIR studies it was concluded that there was no interaction between drug and superdisintegrants used in formulation.

**KEY WORDS:** Orodispersible tablets, montelukast sodium, superdisintegrants and coprocessed technique

## **WORLDWIDE DEVELOPMENT AND COMMERCIALIZATION OF NANOTECHNOLOGY AND NANOMEDICINE**

Mohammed Kaif Syed<sup>\*</sup>, Dr. B. Narasimha Rao, V. Vishwanath

P. Rami Reddy Memorial College of Pharmacy, Utukur, Kadapa.

\*Corresponding Author E-mail address: [mohammedkaifsyed007@gmail.com](mailto:mohammedkaifsyed007@gmail.com)

### **ABSTRACT**

Nanotechnology originated in United States but research and development of nanobiotechnology for applications in health care are being pursued worldwide. Besides the United States, significant developments are taking place in Europe, Israel, Australia, Japan, South Korea, India and China. Markets in nanomedicine will cover all clinical applications, current as well as potential. Along with its impact on health care, there will be changes in the patterns and values of pharmaceutical markets. Its innovations are being applied in diagnosis, drug delivery and therapeutics more prominently in treatment of breast cancer and other diseases. Nanomedicine facilitates drug discovery, drug delivery and target validation. It also enables new formulations of existing drugs. By extending the limits of drug delivery, it can rescue drugs that have failed in clinical trials due to lack of efficacy because of inadequate delivery.

**KEYWORDS:** Nanotechnology, Nanomedicine, Nanobiotechnology, Drug targeting, Carriers etc.

## **FORMULATION AND EVALUATION OF TASTE MASKING ORAL DISINTEGRATING TABLETS OF ZOLMITRIPTAN**

K.Madhavi\*

Department of pharmaceutics, Santhiram College of pharmacy, Nandyal, Kurnool.

\*Corresponding Author E-mail address: [Honeymadhavi828@gmail.com](mailto:Honeymadhavi828@gmail.com)

### **ABSTRACT**

Zolmitriptan is a new serotonergic agonist of the 5-HT<sub>1D/1B</sub> receptor with anti-migraine property and belongs to the class of the triptans. It is extremely bitter in taste. The purpose of this research was to develop a bitterless orally disintegrating tablet of poorly soluble drug like zolmitriptan. Taste masking was done by complexing Kyron T-134 in different ratios. Three super disintegrants like Sodium starch glycolate, Crospovidone, Low substituted hydroxypropyl cellulose were used. Prepared tablets were evaluated for different properties like Drug content, hardness, friability, wetting time, water absorption ratio, disintegration time and In-vitro dissolution studies. The different formulations showed disintegration time between 39 to 52 seconds. Drug release showed between the range of 5 to 30 minutes. Among all the formulations, F9 with Low substituted hydroxypropyl cellulose at a concentration of 4% showed 98.09% drug release within 30 minutes. Thus F9 was considered as best among the other formulations. The tablets showed enhanced dissolution hence better patient compliance. Kinetic analysis ( $r^2$ ) of release data based on best curve-fitting method for selected ODT of Zolmitriptan showed first order kinetics indicating that the drug release depends upon its concentration.

**KEYWORDS:** Zolmitriptan, Kyron T-134, Superdisintegrants, Oral disintegrating tablets and Disintegrating time.



## **REVIEW ON DRUG DELIVERY SYSTEM TO BRAIN BY USING PEGYLATED NANOPARTICLES**

K. R. Soujanya\*, S. Angala Parameshwari

Jagans College of Pharmacy

\*Corresponding Author E-mail address: [soujanya Chowdary1014@gmail.com](mailto:soujanya Chowdary1014@gmail.com)

### **ABSTRACT**

Nanoparticles are an essential component in the emerging field of nano medical imaging and therapy. Nanoparticles for the drug delivery to the brain are a method for transporting drug molecules across the blood brain barrier. These cross the blood brain barrier and deliver pharmaceuticals to the brain for therapeutic treatment of neurological disorders. These disorders include Parkinson's, Alzheimer's etc. When deployed in-vivo, these materials are typically protected from the immune system by Poly ethylene glycol (PEG). A wide variety of strategies to coat and characterize nanoparticles with polyethylene glycol has established important trends on PEG size, shape, density, loading level, molecular weight, charge and purification. Coating the surface of nanoparticles with polyethylene glycol or PEGylation is a commonly used approach for improving the efficiency of the drug and gene delivery to target the cells and tissues. Building from the success of PEGylating proteins to improve systemic circulation time and decrease immunogenicity, the impact of PEG coatings on the fate of the systemically administered nanoparticles formulations has, and continuous to be widely studied. PEG coatings on nanoparticles shield the surface from aggregation, opsonisation, phagocytosis, prolonging systemic circulation time. Long circulating nanoparticles made of methoxy poly (ethylene glycol) poly acetide (Mpeg-PLA) have good safety profiles and provide drug-sustained release. We then describe how PEG coating on nanoparticles have also been utilised for overcoming various biological barriers to efficient drug and gene delivery associated with other modes of administration ranging from gastrointestinal to ocular. The key factor in the effectiveness of PEG surface protein for improving drug and gene delivery. It is also used for cancer treatment.

**KEYWORDS:** mucosal delivery, liposomes, stealth coating, mono nuclear phagocyte system, enhanced permeability, retention effect.

## **A RESEARCH ON FORMULATION, DEVELOPMENT AND EVALUATION OF PARACETAMOL NANOEMULSION FOR ORAL DRUG DELIVERY**

V. Nikhitha\*<sup>1</sup>, C. Senthil Kumar<sup>1</sup>

<sup>1</sup>Department of Pharmaceutics, Jagans College of Pharmacy.

Nellore - 524346, Andhra Pradesh.

\*Corresponding Author E-mail address: [nikhithavelampati@gmail.com](mailto:nikhithavelampati@gmail.com)

### **ABSTRACT**

Poor solubility of drug is a major obstacle to formulate pharmaceutical dosage form. To overcome such obstacles, nanotechnology places a remedy. Nano sized particles can increase the dissolution velocity and saturation solubility because of the vapour pressure effect. The bioavailability of marketed Paracetamol emulsion is less due to its particle size (micron). In order to reach maximum bioavailability, reduction of particle size of Paracetamol can be done with the help of nanotechnology. Paracetamol is a poorly water-soluble drug and having Analgesic effect. In marketed available Paracetamol emulsion, bioavailability is only 50-60%. Hence, Paracetamol nanoemulsion developed and evaluated various parameters and it contains excipients such as polymer, suspending agents, preservatives and surfactants. Drug excipients compatibility study reveals that the FTIR spectra of Paracetamol, Propylene Glycol, Benzoic Acid, Span-80, Polyvinyl Pyrrolidone and formulation were exhibited the peaks of specific functional groups at their respective frequencies due to no interaction. Paracetamol nanoemulsion was prepared at different ratios they are PNE-F1, PNE-F2, and PNE-F3. Particle size and Zeta potential was measured by using Zetasizer and the values of PNE-F1 is 270.1nm & -8.09mV, PNE-F2 is 334.5nm & -7 mV and PNE-F3 is 728.5 nm & -6.98 mV respectively. PH of Paracetamol nanoemulsion at different ratios of PNE-F1 is 7.0, PNE-F2 is 7.1 and PNE-F3 is 6.9 respectively. Density of Paracetamol nanoemulsion at various ratios of PNE-F1 is 1.41, PNE-F2 is 1.87 and PNE-F3 is 2.35 respectively. Hence, the Paracetamol nanoemulsion ratio PNE-F1 having more bioavailability compared to marketed products.

**KEYWORDS:** Nanoemulsion, Paracetamol, Particles size, Analgesic activity and Oral bioavailability.

## **FORMULATION AND EVALUATION OF CONTROLLED RELEASE CARBOXY METHYLATED OKRA GUM-ALGINATE MICROSPHERES CONTAINING METOPROLOL TARTRATE**

R.B Shamini<sup>1\*</sup>, P. Anitha<sup>1</sup>

<sup>1</sup>department Of Pharmaceutics, Annamacharya College of Pharmacy, Ap, India

\*Corresponding Author E-mail address: [rb.shamini48@gmail.com](mailto:rb.shamini48@gmail.com)

### **ABSTRACT**

Antihypertensive drugs were currently available in the market largely in the form of conventional dosage forms. There was a need to develop controlled release drug delivery systems for these categories, so as to optimize the therapy and accrue the benefits enumerated in the controlled release drug delivery systems. One such approach is using polymeric microspheres as drug carriers. Metoprolol tartrate is a selective  $\beta$ -adrenergic receptor blocking agent and commonly used for the treatment of mild to moderate hypertension and stable angina. It is beneficial in post infarction patients. Okra gum is modified to improve its application in control release drug delivery system. Chemical modification such as oxidation, acetylation, hydroxyl propylation and cross-linking provide efficient route not only to reduce the drawbacks but also to improve on the physicochemical properties and to introduce new properties for different applications. OG was extracted by modifying the method described by using an ultrasonic device using fresh ladies finger. Carboxymethylation of OG was carried out employing monochloroacetic acid as reported earlier for increasing their characteristics. The prepared microspheres were evaluated for entrapment efficiency, swelling behavior, *ex vivo* Mucoadhesion strength and Characterization techniques which show clear, smooth, uniform and better Mucoadhesion properties. The formulation F4 has shown optimum release in concentration independent manner. Higuchi's plot for the formulation revealed that the predominant mechanism of drug release is diffusion. Hence, Microspheres containing Metoprolol tartrate could be promising drug delivery as they overcome the side effects by using natural gum, simplify treatment regimen and improve patient compliance.

**KEYWORDS:** Metoprolol, Microspheres, Okra Gum, Modification

## **EMULGEL: A NOVEL DRUG DELIVERY SYSTEM**

VG Gayathri\*

Department of Pharmaceutics, Seven Hills College of Pharmacy, Venkataramapuam, Tirupathi

\*Corresponding Author E-mail address: [gaya3prabhu2018@gmail.com](mailto:gaya3prabhu2018@gmail.com)

### **ABSTRACT**

Topical therapies in cream, ointment, gel and lotion formulation are an important component of dermatological therapeutic armamentarium. They are relatively free of serious side effects. Emulgel, the mixture of emulsion and gel, is relatively a new and novel topical drug delivery system which has many advantages and potential uses in dermatology. An O/W or W/O emulsion from selected oils on the basis of solubility with the suitable emulsifier and a gel formulation is prepared. Then emulsion is incorporated into gel base and an optimized formula of emulgel with different grades and different concentration of gelling agent by applying suitable statistical design is obtained. Excipients are selected on the basis of solubility. Oil portion leads to improvement in penetration. All selected excipients could be selected to assist the pharmacological action of antimicrobial agent.

**KEY WORDS:** Emulgel, Emulsion, Gel

## **REVIEW ON RESPIROCYTES**

N.Yamini\*, S.Angala parameswari, M.Alagusundaram

Jagan's college of pharmacy, Nellore.

\*Corresponding Author E-mail address: [yamininutheti123@gmail.com](mailto:yamininutheti123@gmail.com)

### **ABSTRACT**

Artificial red blood cells or Respirocytes are hypothetical, microscopic, artificial red blood cells that are intended to imitate the function of their organic counterparts, so as to supplement or replace the function of much of the human body's normal respiratory system. Respirocytes were proposed by Robert A. Freitas Jr in his 1998 paper a mechanical artificial red blood cell: exploratory design in medical nanotechnology. Respirocytes are an example of molecular nanotechnology, a field of technology still in the very earliest, purely hypothetical phase of development. Respirocyte is used to treat asphyxia (a condition where there is no oxygen in the body ultimately resulting in death). It is used in tumour therapies and diagnostics, artificial breathing etc., This technology is going to come alive, then most of the serious disease complications can be treated. The design requirements for a respirocyte, which has become the standard reference point for all discussions about the technology. Artificial blood is a product made to act as a substitute for red blood cells. While true blood serve many different functions, Artificial blood is designed for sole purpose of transporting oxygen and carbon dioxide throughout the body. Depending on the type of artificial blood, it can be produced in different ways using synthetic production, chemical isolation or recombinant biochemical technology. These respirocyte contains bloodborne spherical 1-micron diamondoid 1000-atm pressure vessel with active pumping powered by endogenous serum glucose, able to deliver 236 times more oxygen to the tissues per unit volume than natural red cells to manage carbonic acidity.

**KEYWORDS:** Respirocytes, Nanotechnology, Artificial blood, Carbonic acidity, Asphyxia, Artificial breathing.

## **FORMULATION AND EVALUATION OF BUCCAL DRUG DELIVERY OF GLIBENCLAMIDE**

K.Venkata Samyuktha<sup>1\*</sup>, P. Anitha<sup>1</sup>

Department Of Pharmaceutics, Annamacharya College Of Pharmacy, AP, India

\*Corresponding Author E-mail address: [rb.shamini48@gmail.com](mailto:rb.shamini48@gmail.com)

### **ABSTRACT**

Buccal drug delivery is an alternative method of systemic drug delivery that offers several advantages over both injectable and enteral methods. Drugs delivery via the buccal routes using buccal patches offers such a novel routes of drugs administration. This route has been used successfully for the systematic delivery of number of drugs candidates in order to avoid problems such as high first-pass metabolism and drug degradation in the gastrointestinal environment. The aim of the present work is to investigate the formulation of Glibenclamide buccal patches for controlled release medication in order to treat Diabetes. The half life of Glibenclamide is 4-6 hrs and in order to treat the diabetes which required 24hr controlled drug release and to avoid degradation of drug in GIT, the buccal patches were prepared. Buccal patches for delivery of Glibenclamide were prepared by solvent evaporation method using hydroxypropylmethyl cellulose, polyvinyl alcohol and Carbopol. Prepared patches were evaluated for various parameters like Swelling Percentage, Weight, Patch thickness, Folding endurance, drug content uniformity and In vitro release. All formulations show satisfactory results. Among six formulations G5 (HPMC 0.75%, CP 0.75%, PVP 0.5%) shows maximum desire release. Thus, buccal drug delivery of Glibenclamide was successfully developed.

**KEY WORDS:** Buccal Delivery, Glibenclamide, Antidiabetic, Controlled delivery

## **DISPOSAL AND RECYCLE OF PHARMACEUTICAL WASTAGES**

S.M.Rizwan,\*S.Samruddhi dathri, D.L.Priyanka, M.Niranjan babu

Seven Hills College of Pharmacy, Venkataramapuram, Tirupati.

\*Corresponding Author E-mail address: [rizwansm9440@gmail.com](mailto:rizwansm9440@gmail.com)

### **ABSTRACT**

Pharmacists have the potential to be on the forefront of this movement as a healthcare professionals and pharmacists are in an admirable position to educate patients about safe drug disposal. Proper patient counselling on safe medication disposal can make a significant difference to public health and the environment. Medication disposal is an alarming issue today and gaining more and more awareness from the healthcare professionals as well as consumers. Objective: This article aims to provide a background, the importance and significance of proper medication disposal, describe the correct methods to dispose of unwanted and expired medications. there are different methods for different pharmaceutical products. Conclusion: Till date, researchers have acknowledged many human and veterinary pharmaceutical compounds at serious concentrations in drinking water resources and they are a major contributor to environmental pollution. Emphasis is also given on pharmacist role in proper disposal of unwanted and expired medicine makes a significant impact on the environment as well as it prevents accident, poisoning and intentional violence. So it will lead to the welfare of society and trudge towards goal of 2020 health for all.

**KEY WORDS:** Veterinary, waste, human, disposal, healthcare.

## **A REVIEW ON RECENT TRENDS IN NANOMEDICINE**

Dr. P. Sachi Devi\*, Dr. D. Aruna Kumari, Dr. Ravi sekhar, Dr. C. Narasimha Rao  
& Dr. U. Srinettha

Dept. of Zoology, Govt. Degree College for Men (A), Kadapa, A.P  
Dept. of Zoology, SKR & SKR Govt. College for Women, Kadapa, A.P

\*Corresponding Author E-mail address: [sachidevipureti@gmail.com](mailto:sachidevipureti@gmail.com)

### **ABSTRACT**

Nanotechnology is an emerging branch of science for designing tools and devices of size 1 to 100 nm with unique function at the cellular, atomic and molecular levels. Nanotechnology is an emerging branch of science for designing tools and devices of size 1 to 100 nm with unique function at the cellular, atomic and molecular levels. Nanotechnology has huge potential in development of new therapeutics and promises better cure for various diseases. Nanomedicines consist of biodegradable and/or biocompatible submicron-sized colloidal particles encapsulating a drug. The materials used to synthesize or formulate nanomedicines are extremely varied, ranging from lipids to polymer particles. Although nanomedicines are mainly designed for intravenous administration, many other routes of administration are being considered, such as the oral route, the pulmonary route and the ocular route. Of these, the oral route is the one usually preferred by the pharmaceutical industry for its ease of application. The current nanomedicine research has oriented in developing new drugs based on the interaction of nanoparticles on targets like cancer therapeutics, development of new biosensors, bioimaging (cellular and in vivo), new vistas of anti-viral drugs, besides the most researched field of nano delivery of drugs for cancer, diabetes, anti-bacterial, and other ailments. Nanodevices like carbon nanotubes to locate and deliver anticancer drugs at the specific tumour site are under research. Nanotechnology promises construction of artificial cells, enzymes and genes. This will help in the replacement therapy of many disorders which are due to deficiency of enzymes, mutation of genes or any repair in the synthesis of proteins. Currently nanodevices like respiocytes, microbivores and probes encapsulated by biologically localized embedding have a greater application in treatment of anaemia and infections. Thus in the present scenario, nanotechnology is spreading its wings to address the key problems in the field of medicine.

**KEY WORDS:** Nanodrug delivery, Nanoimaging, Nanobiosensor, Nanopharmaceuticals, Nano-anti-viral drugs.

***P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY, KADAPA, A.P.***



## **ALCOHOLIC EXTRACT SEEDS OF FOENICULUM VULGARE IN PHENYLHYDRAZINE INDUCED ANEMIC RATS**

N. Vaishnavi\*, L. Gunavathi

Department of Pharmacognosy, St. Johns College Of Pharmaceutical Sciences, Yemmiganur, A.P.

\*Corresponding Author E-mail address: [nvjass1999@gmail.com](mailto:nvjass1999@gmail.com)

### **ABSTRACT**

The main objective of this research was to evaluate the anti-anaemic activity in hydro-alcoholic extract of seeds of *Foeniculumvulgare* in phenylhydrazine induced anaemic rats. Phenylhydrazine (60mg/kg) was given intra-peritoneally in rats for two days to induce anemia. The animals were divided into 5 groups of 6 animals each. Group 1 was known as normal control group, Group 2 was known as anaemic control group, Group 3 was known as standard reference control group given with Vit B12, Group 4 was known as test control-I given with 100mg/kg of hydro-alcoholic extract of seeds of *Foeniculumvulgare*, Group 5 was known as test control-II given with 200mg/kg of hydro-alcoholic extract of seeds of *Foeniculumvulgare*. All the test drugs were given for a month through oral route once in a day. On last day of the month blood was taken out through tail puncture and was subjected to the determination of RBC, Hb and percentage Haematocrit. Both the hydro-alcoholic seeds extract of *Foeniculumvulgare* and Vit. B12 significantly increase the HB, RBC & percentage Haematocrit level which shows that *Foeniculumvulgare* seeds exhibits the anti-anemic activity.

**KEYWORDS:** Anaemia, anti-anaemic activity, hydro-alcoholic extract, *Foeniculumvulgare*, Vit. B12

## **ROLE OF PHARMACOGENOMICS IN ADVERSE DRUG REACTIONS**

Karunakar Galiveeti\*

P.Rami Reddy Memorial College of Pharmacy, Kadapa, A.P

\*Corresponding Author E-mail address: [karunakarkarthik135@gmail.com](mailto:karunakarkarthik135@gmail.com)

### **ABSTRACT**

Adverse drug reactions (ADRs) are major causes health concern in worldwide and one of the major causes of patient morbidity and mortality. There are multiple causes of ADRS, some of which are non-preventable. Pharmacogenomics deals with the influence of genetic variation on drug response is the study of how individual response to drugs is affected by genetic mutations at the genome level and aims at effective and safe medication to targeted patients with appropriate geno types. It name reflects its combination of pharmacology and genomics. There is aclinical evidence that polymorphisms in gene encoding drug metabolizing enzymes, Drug transporters and drug targets can leads to incidence of ADR (e.g. receptors and enzymes). Pharmacogenomics customized drug therapies thus came into arena to minimize such drug reactions. Over the past years, (GWAS) genome-wide association studies have identified a number of common and rare variants in associations with proteomics and genomics aids in the determination of various drug events and drug induced toxicities. As reasonable and reliable genetic testing tools has become available to physicians, pharmacogenomics looks promising to facilitate individualization of drug therapy and as a result, this will maximize the therapeutic efficacy of drugs in patients as minimizing the occurrence of adverse drug reactions and enables better treatment out comes.

**KEYWORDS:** Pharmacogenomics; Polymorphism; Adverse drug reaction; Genome

## **BORDER LINE PERSONALITY DISORDER [BPD]- AN EMERGING EMOTIONAL DYSREGULATION PERSONALITY IN TEENAGERS & YOUTH**

L. Karthik\*

P. Rami Reddy Memorial College of Pharmacy, Kadapa, A.P., India

\*Corresponding Author E-mail address: [lagisettikarthik422001@gmail.com](mailto:lagisettikarthik422001@gmail.com)

### **ABSTRACT**

Borderline personality disorder, also known as emotionally unstable personality disorder, is a mental illness characterized by a long-term pattern of unstable relationships, a distorted sense of self and strong emotional reactions. Borderline personality disorder usually begins by early adulthood. The condition seems to be worse in young adulthood and may gradually get better with age. The average prevalence of BPD is 1.6% in total population which is recorded, but it may be even higher. About 28.6% of them are younger group (15-24 years) only. According to Indian Psychiatric Association, the prevalence of the disorder in India is about 2% and 20-40% in general population and psychiatric patients. Actually, there's no single cause of BPD and it is likely to be caused by combination of factors like environmental causes like-being have a long-term stress, high depression, genetics, decreased 5-HT 1A receptor mediated response. A diagnosis of BPD is usually made in adults but not in children or teenagers. This is because signs and symptoms of BPD may get reduced as children get older and become more mature. But it is also misdiagnosed as bipolar disorder. Drugs like Anti-psychotics, Atypical anti-psychotics, MAO-Inhibitors, Tricyclic anti-depressants, Mood stabilizers, Nutraceuticals, Anti-anxiety drugs, Selective serotonin reuptake inhibitors are given for adults. According to many studies, awareness about the BPD disorder is important in society, even though teenagers are affected with BPD it can also be treated without medications by giving motivation & supporting them regularly on how to face problems, making them happy for a long periods which helps the patient to overcome from this disorder to some extent.

## **MALE BRAIN VERSUS FEMALE BRAIN**

S. Mohammed rafiq\*

Pharm D IV Year, Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa, Andhra Pradesh, India-516003.

\*Corresponding Author E-mail address: [smrkimaf@gmail.com](mailto:smrkimaf@gmail.com)

### **ABSTRACT**

Why do men and women think differently? Why do they behave differently in stressed conditions? Why do women act more emotionally as compare to men? Why do boys like to play with cards and superman and trucks .why do men and women excel at different types of task? These are the common questions which arise commonly in minds. The human brain is a highly complex organ. Studies of perception, cognition, memory and neural functions have found apparent gender differences. These differences may be attributed to various genetic hormonal and environmental factors and do not reflect any overall superiority advantage to either sex .Both sexes are equal intelligence but tend to operate differently .Men and women appear to use different parts of the brain to encode memories sense emotions, recognize faces, solve certain problems and make decisions. Indeed, when men and women of similar intelligent and attitude Perform equally well, their brains appear to go about it differently, as if nature had separate blue prints.sex differences in the brain may play a role in learning process, language development and progression of neurologically based diseases. Sex differences need to be consider in studying brain structure and function and may raise the possibility of sex specific treatment for neurological diseases. In this article it is reviewed that how does the brain of a man look and function differently from a female brain and what account for these differences?

**KEY WORDS:** Human brain, gender differences, brain aging, neurological disorders, leaning.

## **CYTOCHROME P450 OPERATION, DEARTH DISORDERS AND ITS APPLICATION IN PHARMACEUTICAL DEVELOPMENT**

U. Suchitra<sup>1\*</sup>, K. Saraswathi<sup>1</sup>, Dr. Shaik Kareemulla<sup>2</sup>

<sup>1</sup>Pharm D 3<sup>rd</sup> year, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh-516003

<sup>2</sup>Assistant professor, Department of Pharmacy practice, P. Rami Reddy Memorial College of Pharmacy,  
Kadapa, Andhra Pradesh-516003

\*Corresponding Author E-mail address: [suchitrauppicherla@gmail.com](mailto:suchitrauppicherla@gmail.com)

### **ABSTRACT**

There are about 18 families of cytochrome p450 in mammals which encode 57 genes in human genome. These cytochromes have been existing from 1<sup>st</sup> formed organisms i.e., prokaryotes to eukaryotes. Cytochrome p 450 mono oxygenase enzymes are superfamily and ubiquitous heme-proteins involves in catalysing oxidative reactions, C-H bond hydroxylation, N-dealkylation, S-oxidation etc. This cyp 450 present on chromosome 22 in humans and its families cyp 1, cyp 2, cyp 3 are majorly present in rodents in their chromosome 8, involved in endogenous reactions and drug metabolism in rodents as well as in humans. Critical life functions are characterised by mutations of genes, defects in fatty acids, vitamin D dysregulation, retinoid (important mediator in reproduction, immune system & ion transport) changes leads to dysregulation during fertilisation and abnormal neonatal development. These are used as biocatalysts in industrial production of prednisolone, prostatin, erythromycin, tetracenomycin, taxols, perillyl alcohol from limonene. In biotechnology, it is applied as gene directed enzyme prodrug therapy (GDEPT) to increase the targeted delivery of drug and to reduce toxic effects of drug on the surrounding normal cells in cancer therapy. It is applied as biosensors to determine pharmacokinetic changes in human body. It is also responsible for development of ADR's and drug interactions. Further developments and researches on cytochromes applications in various fields is highly recommended.

**KEY WORDS:** Monooxygenases, rodents, steroidogenesis, retinoids, limonene, GDEPT.

## **INVERSE PHARMACOLOGY**

M.Subbarayudu\*, M.Deepa, D.Swarnalatha

Annamacharya College of pharmacy, New Boyanapalli, Rajampet, Andhrapradesh, 516126

\*Corresponding Author E-mail address: [maraysubbarayudu4456@gmail.com](mailto:maraysubbarayudu4456@gmail.com)

### **ABSTRACT**

Intwenty-first century medical research the foremost feature is the improvement of therapeutic strategies that use ‘biologics’ and living cells instead of, or as well as, the small molecules that were the basis of pharmacology in earlier eras. The high power of these techniques can bring correspondingly high risk, and therefore the need for the potential for external control. Conventional pharmacology has resulted in thousands of small molecules licensed for use in humans, and detailed structural data on their binding to their protein targets. Traditional pharmacology is a directional process that begins with the identification of a target for example, a component of a cellular signalling pathway such as a protein kinase enzyme. It then involves screening small-molecules for an ability to bind to and modulate the activity of that target. From this set of small molecules, candidate drugs are developed, often by rational modification of the original molecules to improve specificity, efficacy or kinetic parameters. These are then subjected to preclinical and clinical testing, ideally resulting in approved drugs for clinical use. Research on drug-target interactions, performed both during drug development and post-hoc, has produced high-resolution structural information for a large number of protein targets and identification of the amino-acid residues that are involved in interactions between the protein and the drug.

**KEY WORDS:** Synthetic biology, Protein engineering, Structure-function, Drug Pharmaceutica.

## **HERBAL MEDICINES THAT STIMULATE INSULIN SECRETION OF THE PANCREAS THAT ARE USED -TO TREAT DIABETES MELLITUS**

Bukke Babitha<sup>\*</sup>, S.Padmakar

Department of Pharmacy Practice, P. Rami Reddy Memorial College of Pharmacy, Kadapa

\*Corresponding Author E-mail address: [bukkebabitha@gmail.com](mailto:bukkebabitha@gmail.com)

### **ABSTRACT**

Herbal medicines have been used in the management of diabetes in traditional medicine. This chapter reviews recent findings of the most popular herbs reported to treat diabetes through their relevant mechanistic pathways. These include increased insulin secretion, improvement in insulin sensitivity, enhanced glucose uptake by Clinical and pharmacological evidence has demonstrated the insulin secretagogue activity of several anti-diabetic herbs. Different medicinal plants have been reported to stimulate insulin release through cell permeability, increase in beta cell number and size, the stimulation of beta cell function and/or protection from beta cell damage and death. Over time, many T2DM patients will require combinational therapy with drugs to tackle the multifaceted nature of DM in order to improve therapeutic outcomes. Therefore, the combination of oral glycaemic agents with insulin tropic herbs would be potentially useful. The herbal drugs that increase insulin secretion, Panax Ginseng, Momordica Charantia, Gymnema Sylvestre. So in future we would expect that these drugs can act as natural stimulators for insulin release particularly in diabetes mellitus patients.

**KEYWORDS:** Herbal medicines, beta cell number, Panax Ginseng, Momordica Charantia, Gymnema Sylvestre, diabetes mellitus patients.

## **STEM CELL AND STEM CELL THERAPY FOR CANCER**

S.A.Sabiha Sulthana\*

P. Rami Reddy Memorial College of Pharmacy, Utukur, Kadapa.

\*Corresponding Author E-mail address: [Shaiksharmas99@gmail.com](mailto:Shaiksharmas99@gmail.com)

### **ABSTRACT**

Stem cells are undifferentiated cell of a multicellular organism which is capable of giving rise to indefinitely more cells of same type and from which certain other kinds of cells arise by differentiation. Characters of stem cells are perpetual self-renewal and the ability to differentiate into specialized adult cell type. They also have high tissue regeneration and repair property. Two types of major stem cells are

1. Pluripotent (become any adult cell type)
2. Multipotent (restricted to becoming a more limited population of cells).

Stem cells are showing increasing promise in treatment of cancer by targeting both primary and metastatic tumor foci. Stem cells engineered to stably express various cytotoxic agents decrease tumor volumes and extended survival in preclinical animal bodies. In addition to this they have been employed as virus and nanoparticle carriers to enhance primary therapeutic efficacies and relieve treatment side effects, also finds its application in regenerative medicine, immunotherapy cancer stem cell targeted therapy and anticancer drug screening. However, while using stem cells to treat human cancers appears technically feasible challenges such as treatment durability and tumorigenesis.

This review focuses on recent progress toward stem cell based cancer treatments and summarizes treatment advantages, opportunities and short comings, potentially helping to refine future trials.

**KEY WORDS:** stem cells, targeted cancer therapy, tumor-tropic property, cell carrier.



## **ANTIBIOTIC RESISTANCE: ALARM BELLS ARE RINGING**

Syed Meharaj Tasleem\*, S. Kalpana

P. Rami Reddy Memorial College of Pharmacy, Utukur, Kadapa.

\*Corresponding Author E-mail address: [ameenataslu@yahoo.com.au](mailto:ameenataslu@yahoo.com.au)

### **ABSTRACT**

Antibiotics are the ‘wonder drugs’ to combat microbes. For decades, multiple varieties of antibiotics have not only been used for therapeutic purposes but practiced prophylactically across other industries such as agriculture and animal husbandry. Uncertainty it has arisen, as microbes have become resistant to common antibiotics while the host remains unaware that antibiotic resistance has emerged. A growing list of infections i.e., pneumonia, tuberculosis, and gonorrhoea are becoming harder and at times impossible to treat while antibiotics are becoming less effective. Antibiotic-resistant infections correlate with the level of antibiotic consumption. Non-judicial use of antibiotics is mostly responsible for making the microbes resistant. The antibiotic treatment repertoire for existing or emerging hard-to-treat multidrug-resistant bacterial infections is limited, resulting in high morbidity and mortality report. Comprehensive efforts are needed to minimize the pace of resistance by studying emergent microorganisms, resistance mechanisms, and antimicrobial agents. Evidence from the literature suggests that the knowledge regarding antibiotic resistance in the population is still scarce. Therefore, the need of educating patients and the public is essential to fight against the antimicrobial resistance battle.

**KEYWORDS:** Antibiotic resistance, Rational use, Multidrug resistance.

## **PHARMACOLOGICAL REVIEW ON *COCCINIA GRANDIS* L. VOGIT PLANT**

Jyothi Basini, G SuvarnaPravallika\*, N Prathima and M Guru Poojitha.

Department of Pharmacology, Seven Hills College of Pharmacy, Venkataramapuram, Tirupati-517561, AP,  
India.

\*Corresponding Author E-mail address: [jyothiphdcolgyvmk@gmail.com](mailto:jyothiphdcolgyvmk@gmail.com)

### **ABSTRACT**

*Cocciniagrandis* L. Vogit used as vegetable and grown throughout Indian sub continent. It belongs to the cucurbitaceae family. It is commonly known as kundru/ Ivy guard in India and in Andhra Pradesh (telugu people) called as dondakaya. Ivy plant has been used in traditional medicine as household remedy for various diseases. The plant parts of *cocciniagrandis* L. Vogit like leaves, roots and fruits are used for various medicinal purposes such as wound healing, ulcers, laxative, jaundice, diabetes, renal stones, asthma, leprosy, tuberculosis etc. The pharmacological research activities was done by authors like antibacterial, antiulcer, anti-malarial, antioxidant, anti-inflammatory, analgesic, anti-pyretic, antifungal, anthelmintic, anti-diabetic, hepatoprotection, anti-dyslipidemic, anti-cancer, anti-tussive, mutagenic and  $\alpha$ -amylase inhibitory. Hence, this article was focused on update review of Pharmacological activities of *Cocciniagrandis* L. Vogit plant.

**KEY WORDS:** *Cocciniagrandis* plant, Ivy Guard, Dondakaya, Medicinal uses, Pharmacological activities.

**THE SAVANT SYNDROME: AN EXTRAORDINARY CONDITION. A  
SYNOPSIS: PAST, PRESENT AND FUTURE**

P.G.Maheshwari<sup>1\*</sup>

B.pharm IVyear, P. Rami reddy memorial college of pharmacy, A.P, India.

\*Corresponding Author E-mail address: [mahids19@gamil.com](mailto:mahids19@gamil.com)

**ABSTRACT**

Savant syndrome, also known as Autistic savant, idiot savant.. It is a condition in which someone with significant mental disabilities demonstrates certain abilities far in excess of average.. Savants perform rapid mental calculations of huge sums, playing lengthy musical compositions from memory after a single hearing, and repairing complex mechanisms without training. Savant skill is linked to massive memory. Autism is a neurodevelopmental disorder or occurs due to a brain injury. About half of the cases are associated with autism and may be known as "autistic savants".While the condition usually becomes apparent in childhood, some cases may develop later in life it affects about one in a million people.Cases of female savants are even less common than those of males. Among those with autism between 1 in 10 to 200 have savant syndrome to some degree. It is estimated that there are fewer than a hundred savants with extraordinary skills currently living.

**KEYWORDS:** savant syndrome, autism, memory, neurodevelopmental disorder.

## **RP-HPLC METHOD DEVELOPMENT AND VALIDATION FOR ESTIMATION OF GLIBENCLAMIDE IN TABLET DOSAGE FORM**

B. Laharee\*

Srinivasa Institute of Pharmaceutical Sciences, Proddatur, A.P, India – 516361

\*Corresponding Author E-mail address: [lahariboga2013@gmail.com](mailto:lahariboga2013@gmail.com)

### **ABSTRACT**

The prime aim of the current work is to develop and validate a novel, sensitive, reverse phase High Performance Liquid Chromatography (RP-HPLC) technique for the estimation of Glibenclamide in dosage form. Chromatographic separation was achieved on a Chromosil column, (150mm×4.6mm x5 $\mu$ ) using an isocratic method with mobile phase composed of Potassium di-hydrogen phosphate buffer (pH 4.5): Acetonitrile in the ratio 60:40 v/v. The flow rate was 1 ml/min, temperature of the column was maintained at ambient and detection was made at 233 nm. The run time was 12 min. The developed method was validated according to the International Conference on Harmonization (ICH) guidelines with respect to linearity, accuracy, precision, specificity and robustness. The developed method was linear for Glibenclamide from 10 - 50  $\mu$ g/ml and the linear regression obtained was > 0.999. Precision, evaluated by intra and inter-day assays had relative standard deviation (R.S.D) values within 1.5 %. Recovery data were in the range 98.2% to 100.9% with R.S.D. values < 1.5 %. The method is precise, accurate, linear, robust and fast. The short retention time allows the analysis of a large number of samples in a short period of time and, therefore, should be cost effective for routine Quality Control in the pharmaceutical industry.

**KEYWORDS:** HPLC, Method development, Validation, Reverse Phase and Glibenclamide.

**A VALIDATED STABILITY-INDICATING HPLC METHOD FOR  
SIMULTANEOUS DETERMINATION OF GLECAPREVIR AND PIBRENTASVIR  
IN BULK AND TABLET DOSAGE FORM.**

Y.Ismail\*<sup>1</sup>, Haja Nazeer Ahamed<sup>2</sup>, M.Vijaya Vara Prasad<sup>3</sup>

<sup>1,2,3</sup>Crescent School Of Pharmacy,

B.S.Abdur Rahman Crescent Institute Of Science And Technology, Chennai, Tamilnadu India.

\*Corresponding Author E-mail address: [ismailpharmacy786@gmail.com](mailto:ismailpharmacy786@gmail.com)

**ABSTRACT**

Quantitative measurement of glecaprevir and pibrentasvir in combined dosage form was developed by simultaneous determination using liquid chromatographic method. Chromatographic separation was achieved on Agilent Eclipse column (150 x 4.6 mm, 5 µm) and isocratic mixture of mobile phase consisted of 30% v/v ortho-phosphoric acid (0.1 %) and 70% v/v methanol and ultraviolet spectrum absorbance at 244 nm. The protocol run resulted the two well differentiated peaks appeared at 1.86 minutes for glecaprevir and 2.67 minutes for brentasvir. Validated of this robust method was performed as per the guidelines of the International Conference on Harmonisation (ICH). Linearity of the drugs glecaprevir and pibrentasvir over the concentration range 50-250 µg/mL and 20-100 µg/mL respectively. The developed process was validated by 5 parameters such as linearity, sensitivity, accuracy, precision and robustness. Percent recoveries were found to be 97.95 % and 98.25 % of two drugs with low variability. The suitability of proposed concentration estimation method of above drugs confirmed by high recovery and low relative standard deviation values. Purity and degradation evaluation of these formulations also validated by stability-indicating study and indicated that this simple method can be adopted for repetitive analysis in industry.

**KEYWORDS:** Purity, dosage form, protocol, recovery, accuracy.

**STABILITY INDICATING RP-HPLC METHOD DEVELOPMENT AND  
VALIDATION FOR THE ESTIMATION OF BRIVARACETAM IN BULK AND ITS  
DOSAGE FORM**

Vishnu Sai beere\*, B Pavani, Y Surendranath reddy, C Hari Kumar

Vasavi Institute of Pharmaceutical Sciences, vasavi nagar, peddapalli(v), sidout(m), Kadapa, Ap, 516247

\*Corresponding Author E-mail address: [vishnubeere@gmail.com](mailto:vishnubeere@gmail.com)

**ABSTRACT**

A simple, precise, accurate method was developed for the estimation of Brivaracetam by RP-HPLC technique. WATERS HPLC, Model: Alliance 2695, Photo diode array detector, with an automated sample injector. The output signal was monitored and integrated using Empower 2 software. Agilent C18 column was used for separations, and flow rate was maintained at 1.2ml/min, detection wave length was 290nm, column temperature was ambient, Potassium Dihydrogen Ortho phosphate (0.02M):Methanol 40:60v/v buffer pH 6.0 adjusted with Ortho phosphoric acid and chromatographic conditions were finalized as optimized method. System suitability parameters were studied by injecting the standard five times and results were well under the acceptance criteria. Linearity study was carried out between 40% to 120% levels, R<sup>2</sup> values were found to be as 0.9997. Precision was found to be 0.31 for repeatability and 1.20 for intermediate precision. LOD and LOQ are 0.0006 and 0.002 µg/ml respectively. The proposed method was applied for the tablet of Brivaracetam and mean % assay was found to be 100%.

**KEY WORDS:** Brivaracetam, Agilent C18 column, Stability indicating studies, Buffer, RP-HPLC

**METHOD DEVELOPMENT AND VALIDATION FOR SIMULTANEOUS  
ESTIMATION OF SOFOSBUVIR AND VELPATASVIR IN BULK AND  
TABLET DOSAGE FORM BY USING HPLC**

Bhavanasi Mounika\*, Y Keshava Reddy, Y Surendranath reddy

Vasavi institute of Pharmaceutical sciences,

Vasavi Nagar , Peddapalli, Near Bhakarapet Railway station, Sidhout (M), Kadapa, A.P, India.

\*Corresponding Author E-mail address: [Bmounika4580@gmail.com](mailto:Bmounika4580@gmail.com)

**ABSTRACT**

A simple, precise, accurate method was developed for the simultaneous estimation of Sofosbuvir and Velpatasvir in bulk and dosage form by HPLC method using WATERS HPLC, 2695 separation module, uv detector with an automated sample injector. The output signal was monitored and integrated using Empower software. The method was performed with various columns like C18 column Phenomenex column, YMC, and Inertsil ODS column. Spursil DIKMA (4.6 x 150mm, 5  $\mu$ m), xterra C18, column (4.68x150mm, 5  $\mu$ m) was found to be ideal as it gave good peak shape and resolution at 0.5 ml/min flow rate. The detection wavelength for UV spectrum of 10  $\mu$ g/ml Sofosbuvir and 10  $\mu$ g/ml Velpatasvir in diluents (mobile phase composition) was recorded by scanning in the range of 200nm to 400nm. From the UV spectrum wavelength selected as 238 nm. At this wavelength both the drugs show good absorbance. the mobile phase was optimized to Phosphate buffer pH 3: Acetonitrile in proportion 95: 5 v/v respectively. The retention time of Sofosbuvir and Velpatasvir is 3.261 and 5.039 min respectively. LOD and LOQ for these drugs were found to be 0.030ppm, 0.0302ppm and 0.10ppm, 0.109ppm respectively. The proposed method was applied for the tablets of Sofosbuvir and Velpatasvir and mean % assay was found to be 100.51% and 100.47% respectively.

**KEY WORDS:** Sofosbuvir, Velpatasvir, simultaneous estimation, UV detector, HPLC

**STABILITY INDICATING RP-HPLC METHOD DEVELOPMENT AND  
VALIDATION FOR THE SIMULTANEOUS ESTIMATION OF GLECAPREVIR &  
PIBRENTASVIRIN BULK AND ITS DOSAGE FORM**

Ms. M. Jyoshna<sup>\*1</sup>, Mrs. Guduru Rajeswari <sup>2</sup>

Asst. professor, department of pharmaceutical analysis, saastra college of pharmacy, Nellore.

\*Corresponding Author E-mail address: [jyoshnagrace@gmail.com](mailto:jyoshnagrace@gmail.com)

**ABSTRACT**

**OBJECTIVE:** The objective of the present work is to develop and validate a HPLC method of GLECAPREVIR & PIBRENTASVIR with PDA detector. **HPLC METHOD DEVELOPMENT:** Solvent Phase Optimization: Initially the Solvent phase tried was methanol: Ortho phosphoric acid buffer and Methanol: phosphate buffer, Acetonitrile: methanol with various combinations of pH as well as varying proportions. Finally, the Solvent phase was optimized to 0.025M phosphate buffer (pH 3.0), Acetonitrile in proportion 45: 55 v/v respectively. **Wave length selection:** UV spectrum of 10 µg/ml Glecaprevir and 10 µg/ml Pibrentasvir are prepared with diluents (Solvent phase composition) was recorded by scanning in the range of 200nm to 400nm. From the UV spectrum wavelength selected as 244 nm. At this wavelength both the drugs show good absorbance. **Discussion and Conclusion** The method optimized for its regular analysis by waters HPLC and the PDA detector set as 244 nm, the column dimension used as X Terra 4.6\*150 mm, 5µ particle size, the flow rate was maintained as 1.0 ml/Min and the run time is 15.0 Min. The mobile phase was selected for 0.1% Ortho Phosphoric acid and acetonitrile in proportion of 30:70 v/v ratios. The retention time for the standard Glecaprevir and Pibrentasvir were obtained at 2.406 and 4.980 minutes respectively. The validation parameters like system suitability, Linearity, Precision, Accuracy, and Sensitivity like LOD, LOQ, and all other parameters were verified with the selected method.

**KEYWORDS:** Glecaprevir, Pibrentasvir, RP-HPLC, Precision, Optimization, Solvent.



## **STABILITY INDICATING RP-HPLC METHOD FOR THE SIMULTANEOUS ESTIMATION OF LUMACAFTOR AND IVACAFTOR IN BULK AND PHARMACEUTICAL DOSAGE FORMS**

**K. Rushitha\***, B. Sivagami, R. Chandrasekar, M. Niranjana Babu

Department of Pharmaceutical Analysis, Seven Hills College of Pharmacy, Venkataramapuram, Tirupati,  
Chittoor Dist, 517561, A. P.

\*Corresponding Author E-mail address: [rushytsrry123@gmail.com](mailto:rushytsrry123@gmail.com)

### **ABSTRACT**

The present work was designed to develop a simple, fast, accurate, precise, reproducible stability indicating reverse phase high performance liquid chromatography (RP-HPLC) method developed and validated for the determination of lumacaftor and ivacaftor in bulk and pharmaceutical dosage form. Chromatographic separation was done by using Agilent Eclipse XDB-C8 column having dimension of (4.6×150mm, 5µm). Mobile phase containing 0.1% O.P.A and acetonitrile in the ratio of 40:60 was pumped through column at a flow rate of 1ml/min. Temperature was maintained at 25°C. Optimized wavelength for Lumacaftor and Ivacaftor was 290 nm. Retention time of Lumacaftor and Ivacaftor were found to be 1.8 & 2.6 min. Percentage purity of Lumacaftor and Ivacaftor was found to be 100.19% and 101.45% respectively. System suitability parameters for Lumacaftor and Ivacaftor such as theoretical plates are 4725.92 & 6256.39, tailing factor was 1.46 & 1.29, resolution was found to be 3.18. The proposed method has been validated for accuracy, precision, linearity; robustness and range were within the acceptance limit according to ICH guidelines. Mean recovery was found to be 100.39% & 100.39% respectively. Correlation coefficient ( $R^2$ ) was found to be 0.999 & 0.999; % RSD for Precision was 0.2 and 0.7 respectively. LOD, LOQ values of Lumacaftor was 3.07 & 10.09; Ivacaftor was 2.95 & 9.93 respectively. Lumacaftor and Ivacaftor were subjected to stress conditions like acidic, alkaline, oxidation, photolysis and thermal degradation. Hence the developed method can be successfully employed for the routine analysis of Lumacaftor and Ivacaftor in bulk and pharmaceutical dosage forms.

**KEY WORDS:** Lumacaftor, Ivacaftor, RP-HPLC, Method development, Validation.

## **A VALIDATED METHOD FOR THE SIMULTANEOUS ESTIMATION OF LINAGLIPTIN AND METFORMIN IN TABLET DOSAGE FORMS BY RP-HPLC**

U. Venkatesh\*, B. Sivagami, R. Chandrasekar, M. Niranjana Babu

Department of Pharmaceutical Analysis, Seven Hills College of Pharmacy, Venkataramapuram, Tirupati,  
Chittoor Dist, 517561, A. P. India.

\*Corresponding Author E-mail address: [peterpaul7832@gmail.com](mailto:peterpaul7832@gmail.com)

### **ABSTRACT**

A simple, Accurate, precise and rapid method was developed for the simultaneous estimation of the Metformin and Linagliptin in Tablet dosage form. Chromatogram was run through Inertsil ODS C<sub>18</sub> (250 x 4.6 mm, 5 $\mu$ ). Mobile phase containing Methanol, Acetonitrile and Water in the ratio of 40:40:20 was pumped through column at a flow rate of 1ml/min. Optimized wavelength for Metformin and Linagliptin was 258 nm. Retention time of Metformin and Linagliptin were found to be 2.764 min and 3.162 min %RSD of Metformin and Linagliptin were found to be 0.507 and 0.51 respectively. % Assay was obtained as 99.24% and 99.82% for Metformin and Linagliptin respectively. LOD, LOQ values of Metformin and Linagliptin were 0.08ppm, 0.25ppm and 0.03ppm, 0.08ppm respectively. Regression equation of Metformin was found to be  $y = 10831x - 34273$ , and for Linagliptin value was found  $y = 21030x + 31232$ . Hence the developed method can be successfully employed for the routine analysis of Metformin and Linagliptin in bulk and pharmaceutical dosage forms.

**KEY WORDS:** Metformin, Linagliptin, RP-HPLC

## **INSILICO SCREENING, DESIGN, SYNTHESIS AND BIOLOGICAL EVALUATION OF NOVEL TYROSINE KINASE INHIBITORS AS POTENTIAL ANTICANCER AGENTS**

S.V.Manideepika\*, M.Deepa, D.Swarnalatha

Annamacharya College of pharmacy, New Boyanapalli, Rajampet, Andhrapradesh-516126

\*Corresponding Author E-mail address: [manilucky342@gmail.com](mailto:manilucky342@gmail.com)

### **ABSTRACT**

Triazole core based organic molecules possess many pharmacological activities like antimicrobial, anti-inflammatory, analgesic, antiepileptic, antiviral, antineoplastic, antihypertensive, antimalarial, local anaesthetic, antianxiety, antidepressant, antihistaminic, antioxidant, antitubercular, anti-Parkinson's, antidiabetic, antiobesity and immunomodulatory agents, etc. The broad and potent activity of triazole and their derivatives has established them as pharmacologically significant scaffolds. The basic heterocyclic rings present in the various medicinal agents are 1,2,3-triazole and 1,2,4-triazole. A large volume of research has been carried out on triazole and their derivatives, which has proved the pharmacological importance of this heterocyclic nucleus. . Our research efforts have been focusing on different aspects of triazoles including facile synthesis, greener techniques and investigating their bioactivity. The aim is to show the trend in the research on triazole derivatives as anticancer agents by *Insilico* Screening by using CAAD Online sources like Mcule, Pass online, Chemspider, Prottox-II. Synthesis of the derivatives was carried in two steps by using ecofriendly techniques with minimal use of solvent and high yields. The four derivatives are screened for **DRUG-TARGET BINDING AFFINITY** using Mcule taking tyrosine kinase as target and taking standard drug as **IBRUTINIB**. The designed derivatives were binded with nearly same affinity as standard. The anticancer activity of the derivatives were screened by MTT assay method.

**KEY WORDS:** 1,2,4-triazole, Greener techniques , Insilico Screening

## **SYNTHESIS, CHARACTERIZATION AND ANALGESIC ACTIVITY OF THIAZOLIDINONE DERIVATIVES**

J.Sree Harsha <sup>\*1</sup>, S. Sony Ruksana <sup>2\*</sup>.

Dept of pharmaceutical chemistry, Santhiram College of Pharmacy, Nandyal.

\*Corresponding Author E-mail address: [sreeharish7382@gmail.com](mailto:sreeharish7382@gmail.com)

### **ABSTRACT**

Substituted Thiazolidine-4-ones have received considerable attention during last one decade as they are endowed with variety of biological activities and have wide range of therapeutic properties. A series of novel thiazolidin-4-one have been synthesized by the reaction of ethyl benzoate with hydrazine hydrate to form Benzohydrazone which react substituted aromatic Aldehydes in the presence of acetic acid and ethanol to produce corresponding Schiff's bases. The compounds were further treated with thioglycolic acid and dry benzene results in the formation of title compounds. The synthesized compounds were characterized by spectral studies like IR, <sup>1</sup>H NMR AND MASS spectroscopy. Analgesic activity of the synthesized compounds showed good results at the concentration of 30mg/kg by using standard diclofenac sodium in which  $ks_{4d}$  shown potent activity in both acetic acid induced writhing method and eddy's hot plate method. The results showed that incorporation of appropriately substituted aromatic aldehyde at 2<sup>nd</sup> position of Thiazolidinone nucleus can afford good analgesic activity.

**KEYWORDS:** Thiazolidinone, Analgesic activity, Diclofenac sodium.

## **SYNTHESIS, CHARACTERIZATION AND ANTI-BACTERIAL ACTIVITY OF NALIDIXIC ACID DERIVATIVES**

C.Nilay Raju\*

Department of pharmaceutical chemistry, Santhiram College of Pharmacy, Nandyal.

\*Corresponding Author E-mail address: [chilakanilayraju@gmail.com](mailto:chilakanilayraju@gmail.com)

### **ABSTRACT**

Eight novel Nalidixic derivatives are synthesized and screened for anti-bacterial activity by Agar diffusion method. The synthetic scheme of Nalidixic acid derivatives involves the reaction between Nalidixic acid and with thionyl chloride and esterified with methanol. The formed ester of Nalidixic acid is now treated with hydrazine hydrate to form hydrazone of Nalidixic acid. Further treated with benzaldehyde derivatives resulted into various Schiff base of Nalidixic acid derivatives. The synthesized compounds were characterized by IR, NMR, and MASS spectra. Finally selected compounds were screened for antibacterial activity against Gram +ve microorganisms S.aureus, B.Subtilis using Tetracyclin as reference standard and Gram-ve microorganism like E.Coli, Proteus vulgris using Erythromycin as a reference standard. Some compounds shown potent activity and other compounds showed mild to moderate activity against these species.

**KEYWORDS:** Nalidixic acid Derivatives, Agar diffusion method, Antibacterial activity.

## **SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL ACTIVITY OF SCHIFF BASE BY 3-AMINOACETOPHENONE**

B. Indira priyadarshini\* D. Padmavathi,

Department of pharmaceutical chemistry, Santhiram College of Pharmacy, Nandyal.

\*Corresponding Author E-mail address: [deena1411998@gmail.com](mailto:deena1411998@gmail.com)

### **ABSTRACT**

The (E)-3-(3-acetylphenylimino) indolin-2-one (Bidentate) ligand type [HL], has been prepared from Isatin and 3-aminoacetophenone in the presence of KOH. In general, the ligand contains oxygen (O) and nitrogen (N) donor atoms. The reaction of Isatin and 3-aminoacetophenone was carried out in ethanol by condensation reaction at 80°C with reflux for 4 h, to form [HL] ligand type. This ligand has been used to prepare NiII and CoII complexes in the ratio of 1:1 metal-ligand. All compounds have been characterized by spectroscopic methods (Fourier transform infrared and ultraviolet-visible), C.H.N, thin-layer chromatography, mass spectrum, X-ray diffraction, magnetic moment, conductivity measurements and melting point, the synthesized ligand and its metal complexes have been tested for their antibacterial activity against *Staphylococcus aureus* and *Bacillus subtilis* using agar disc diffusion method. The ligand and its complexes showed significant activities against *S. aureus* and *B. subtilis*. Our study revealed the formation of four coordinate square planar complexes around NiII and CoII metal ions.

**KEYWORDS:** 3-aminoacetophenone, bidentate ligand and (N) donor atoms, Isatin, Schiff base.

## **EVALUATION OF THE PHYSICOCHEMICAL PROPERTIES OF SOME EDIBLE OILS AVAILABLE IN TIRUPATHI**

Pranabesh Sikdar, K. Ramyasree\*, S. Ajitha, S. Nandini, M. Niranjana Babu

Department of Pharmaceutical Chemistry, Seven Hills College of Pharmacy, Venkatramapuram, Tirupathi,  
Andhra Pradesh.

\*Corresponding Author E-mail address: [ramyasreekolavennu@gmail.com](mailto:ramyasreekolavennu@gmail.com)

### **ABSTRACT**

The major sources of dietary lipids are edible oils, which include both vegetable and fish oils. Crude oil extracted from vegetable and fish sources contain mono-, di-, triacylglycerols along with impurities, which necessitates refining. Oils are composed of balanced combination of fats but the fat ratios in some oils are imbalanced which may be harmful to the health, these oils are commonly used in deep-frying which is unhealthy to begin with and can even contain genetically modified ingredients. Vegetable oils are loaded with an improper balance of omega-3s and omega-6s, may increase risk of many degenerative diseases; therefore following unhealthy oils must be avoided: Corn, Canola, Soybean, Sunflower, Safflower. The Physicochemical properties (Density, Moisture content, Specific gravity, Refractive index, Acid value, Peroxide value, Iodine value, Saponification value) were assessed for some of the commonly used edible oils available in Tirupathi local market. All the properties were determined using standard procedures. When the results were compared with the physicochemical properties of standards (FAO/WHO) it was observed that the results were in the acceptable ranges.

**KEY WORDS:** Edible oils, Acid value, Peroxide value

## **ISOLATION AND CHARACTERIZATION OF BIOACTIVE PHYTOCOMPOUND FROM ETHANOLIC WHOLE PLANT EXTRACT OF *PINUS MARITIMA***

Mrs. Guduru Rajeswari<sup>\*1</sup>, Dr. D Swarnalatha<sup>2</sup>, Prof K B Chandra Sekhar<sup>3</sup>

<sup>\*1</sup> Research scholar, Jawaharlal Nehru Technological University, Anantapuramu, AP, India.

<sup>2</sup> Principal, Annamacharya college of pharmacy, Rajampet, AP, India.

<sup>3</sup> Director, Foreign Affairs And Alumni Matters, Jawaharlal Nehru Technological University, Anantapuramu, AP, India.

\*Corresponding Author E-mail address: [rajeswarim.pharm6@gmail.com](mailto:rajeswarim.pharm6@gmail.com)

### **ABSTRACT**

**Objective:** The present study was designed for isolation of bioactive flavonoid molecule from the whole plant of *Pinus maritima* and its subsequent characterization. **Methods:** Crude extracts of *Pinus maritima* were prepared using various solvents such as water and ethanol. The plant extracts were subjected for phytochemical analysis and total flavonoid content. The extracts were then subjected to column chromatography followed by TLC. The isolated compound was subjected to HPLC, IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR, mass spectroscopy. **Results:** The ethanol extract showed the presence of higher flavonoid content when compared with other solvent extracts. The ethanol extract was subjected to fractionalization by column chromatography. The eluted fractions were run in TLC mobile phase with the different solvent ratio. The fractions showed R<sub>f</sub> value equal to standard TLC were combined and crystallized. Mass of the compound by LC/MS was found to be 381.20m/z. The characterization techniques confirmed that the isolated compound was found to be a phenolic compound with chemical formula C<sub>25</sub>H<sub>33</sub>NO<sub>2</sub>. **Conclusion:** The new phenolic compound was isolated effectively from the ethanolic extract of whole plant of *Pinus maritima*

**KEYWORDS:** Flavonoids, NMR, *Pinus maritima*