Clinical Pharmacy

A Newsletter of Drug and Prescribing Information

Prepared by
Department of Clinical Pharmacy
JSS College of Pharmacy at
JSS Hospital, Mahatma Gandhi Road,
Mysuru – 570004

Editors:
Dr. G. Parthasarathi, Dr. M. Ramesh, Ms. Karin Nyfort-Hansen, Ms. Juny Sebastian and Mr. Krishna Undela

Volume 21, Number 1 **Jan - Apr 2017**

ADVERSE DRUG REACTION REPORTS: SEPT - DEC 2016

A total of 786 Adverse Drug Reactions (ADRs) were reported or detected by the Department of Clinical Pharmacy during September to December 2016. The following are some of the suspected ADRs that were either reported to or detected by the Department of Clinical Pharmacy. In most of the cases there was a change in drug therapy e.g. cessation of suspected drug or reduction in dose, and/or either specific or symptomatic treatment for the suspected ADR.

DRUG (S)	REACTION
5-Fluorouracil	Extravasation
Acebrophylline	Ventricular trigeminy
Aceclofenac	Erythematous wheels on both hands
Amlodipine	Gingival hyperplasia
Aspirin	Tinnitus
Budesonide	Oral candidiasis
Diclofenac	Necrotising fasciitis
Glycopyrrolate	Xerostomia
Hydroxychloroquine	Myopathy
Levetiracetam	Nystagmus
Linezolid	Acneiform eruptions
Methyl Prednisolone	Folliculitis
Mometasone Furoate	Hirsutism
Risperidone	Galactorrhea and menstrual irregularity
Torasemide + Spironolactone	Exfoliative dermatitis

Amlodipine induced Gingival Hyperplasia

The underlying mechanism of gingival hyperplasia due to amplodipine still remains to be fully understood. However, two main inflammatory and non-inflammatory pathways have already been suggested. The proposed non-inflammatory mechanisms include defective collagenase activity due to decreased uptake of folic acid, blockage of aldosterone synthesis in adrenal cortex and consequent feedback increase in adrenocorticotropic hormone level and upregulation of keratinocyte growth factor. Alternatively, inflammation may develop as a result of direct toxic effects of concentrated amlodipine in crevicular gingival fluid and/or bacterial plaques. Stringent maintenance of oral hygiene, switchover to alternative drugs and surgical therapy if required, remains the main stay of available treatment modalities. Better results were obtained where drug substitution along with oral prophylaxis were followed.

Diclofenac induced Necrotising Fasciitis

Necrotising fasciitis (NF) is a rare soft tissue infection most frequently due to group A β-haemolytic streptococcus, although a number of other organisms have been isolated. Whether this effect is due to masking of symptoms of early NF by NSAIDs, or whether the frequent use of NSAIDs for nonspecific musculo-skeletal symptoms plays a role in the pathogenesis of NF, has not been clarified. Although, the underlying mechanism of the association of NSAIDs and increased severity of streptococcal infections has not been defined. A high index of suspicion, early diagnosis, aggressive surgical exploration and debridement, antibiotics, and ICU support are key factors in successful management for this condition.

We encourage you to report all suspected adverse drug reactions to Department of Clinical Pharmacy. Adverse drug reaction reporting forms are available at all nursing stations. Alternatively you may call Department of Clinical Pharmacy on 2335555 Extn. 5577 or SMS to 07411137840 (Format: ADR / IP or OP Number/ Name of the patient/ Ward)

DRUGS APPROVED BY US FDA : SEPT - DEC 2016

DRUG	BRAND	USE
Dermatology		
Crisaborole ointment	Eucrisa	For the treatment of atopic dermatitis
Gastroenterology		
Bezlotoxumab	Zinplava	For the treatment of recurrent Clostridium difficile infection in patients receiving antibacterial treatment
Hepatology		
Tenofovir alafenamide	Vemlidy	For the treatment of chronic hepatitis B
Musculoskeletal		
Eteplirsen	Exondys 51	For the treatment of Duchenne Muscular Dystrophy (DMD) with mutated DMD gene amenable to exon 51 skipping
Nusinersen	Spinraza	For the treatment of spinal muscular atrophy
Neurology		
Carbamazepine	Carnexiv	Replacement therapy when oral administration is not feasible, in adults with seizures
Oncology		
Olaratumab	Lartruvo	For the treatment of soft tissue sarcoma
Nivolumab	Opdivo	For the treatment of recurrent or metastatic squamous cell carcinoma of the head and neck
Rucaparib	Rubraca	For the treatment of advanced ovarian cancer in women with deleterious germline or somatic BRCA mutation

Reference: https://www.centerwatch.com/drug-information/fda-approved-drugs/

DRUGS APPROVED BY CDSCO, INDIA: SEPT - DEC 2016

DRUG	STRENGTH	INDICATION
Midodrine Hydrochloride	2.5 mg Tablet	For the treatment of symptomatic orthostatic hypotension
Phospholipids Fraction from Bovine Lung (surfactant)	50 mg/vial	Preventive use in premature neonates with a high risk of Respiratory Distress Syndrome
Dolutegravir (Dolutegravir Sodium)	50 mg Tablet	Indicated in combination with other antiretroviral agents for the treatment of HIV-1 infection in adults weighing more than 40 kg
Alcaftadine Eye Drops	0.25% w/v	For the prevention of itching associated with allergic conjunctivitis in patients between the age group 10 to 60 years
Lenvatinib (Lenvatinib Mesylate)	4mg/10mg Hard Gelatin Capsules	For the treatment of patients with locally recurrent or metastatic, progressive, radioactive iodine-refractory differentiated thyroid cancer
Perampanel	2mg/4mg/6mg/8mg/10mg/12mg Tablets	The adjunctive treatment of partial-onset seizures with or without secondarily generalized seizures in patients with epilepsy aged 12 years and older
Azilsartan Medoxomil	40mg/80mg Tablets	Indicated for the treatment of hypertension in adults patients, either alone or in combination with other antihypertensive agents

Reference: http://www.cdsco.nic.in/forms/list.aspx?lid=2034&Id=11

Empagliflozin has been Approved for a New Indication

Empagliflozin is a selective inhibitor of sodium glucose cotransporter2 (SGLT2) first approved in the United States of America and in Europe in 2014 as an adjunct to diet and exercise to improve glycaemic control in adults with type 2 diabetes. Empagliflozin works by reducing the kidneys' ability to reabsorb glucose into the bloodstream, leading to urinary glucose excretion. Given as a monotherapy or as an add on therapy, empagliflozin has been shown to reduce HBA1c in diabetic patients, including those with stage 2 or 3 chronic kidney disease. A plethora of evidence also suggested an association between empagliflozin and improved weight control, as well as blood pressure reduction without increases in heart rate.

On 2nd December 2016, the US Food and Drug Administration (FDA) has approved empagliflozin for the new indication 'prevention of death due to cardiovascular disease (CVD) in adults with type 2 diabetes and established CVD, making it the first diabetes drug approved to reduce the risk of cardiovascular death in this population. Empagliflozin is also approved in Canada for the same indication.

The approval of empagliflozin for a new indication was based on findings from the landmark postmarketing EMPAREG OUTCOME study. This study compared the effects of once daily empagliflozin *Vs* placebo on cardiovascular morbidity and mortality in 7,020 adult patients with type 2 diabetes at high cardiovascular risk against a background of standard care (statins, angiotensin converting enzyme inhibitors, and aspirin). It showed that empagliflozin reduced the primary composite outcome of cardiovascular death, nonfatal myocardial infarction (MI) and nonfatal stroke by 14 percent in patients with type 2 diabetes and known CVD. However, the absolute risk reduction for the same was identified as only 1.6%. The beneficial effect was mainly driven by a 38 percent reduction in CV mortality with no significant decrease in nonfatal MI or stroke. When added to standard of care, empagliflozin also prevented 1 in 3 deaths with a 32 percent reduction in risk of death from any cause. The study also identified an increased rate of genital infection (2.5 times) among patients received empagliflogin comapared to patients receivced placebo.

References: 1. Zinman B, et al. Empagliflozin, Cardio vascular Outcomes, and Mortality in Type 2 Diabetes. N Engl J Med 2015;373:2117-2128.

2.www.fda.gov/NewsEvents/Newsroom/PressAnnouncements /ucm531517.htm

Is Pioglitazone Associated with Increased Risk of Bladder Cancer?

Pioglitazone is a thiazolidinedione calss of medication approved to improve blood sugar control, along with diet and exercise, in adults with type 2 diabetes. Pioglitazone works by increasing the body's sensitivity to insulin, a natural hormone that helps control blood sugar levels.

On 12th December 2016 the U.S. Food and Drug Administration (FDA) has concluded that use of the type 2 diabetes medicine pioglitazone (Actos, Actoplus Met, Actoplus Met XR, Duetact, Oseni) may be linked to an increased risk of bladder cancer.

FDA alerted the public about the possible risk of bladder cancer in September 2010 and June 2011 based on interim results from a 10-year epidemiologic study. FDA changed the labels of pioglitazone-containing medicines in August 2011 to include following warnings about this risk, and required the manufacturer to continue the 10-year study.

Health care professionals should not use pioglitazone in patients with active bladder cancer, and should carefully consider the benefits and risks before using pioglitazone in patients with a history of bladder cancer.

Patients should contact their health care professionals if they experience any of the following signs or symptoms after starting pioglitazone, as these may be due to bladder cancer:

- Blood or a red color in the urine
- New or worsening urge to urinate
- Pain when urinating

For instance, the 10-year epidemiologic study did not find an increased risk of bladder cancer with pioglitazone use, whereas another study did. In addition, a randomized controlled trial found an increased risk during the trial period; however the risk did not persist when patients were followed after the trial was completed. Furthermore, findings of these and other reviewed studies conflicted about whether the duration of use and/or total dose over time of pioglitazone influenced the risk of bladder cancer. FDA also previously communicated in 2010 that bladder tumors were seen with pioglitazone exposure in animal studies. Overall, the data suggest that pioglitazone use may be linked to an increased risk of bladder cancer.

Till date there is only one case on pioglitazone induced bladder cancer reported from India to WHO collaborating center for international drug monitoring (Uppsala Monitoring Centre, Sweden). Indian Pharmacopoeia Commission, National Coordinating Centre for Pharmacovigilance Program of India (PvPI) urge patients and health care professionals to report side effects involving pioglitazone or other medicines to nearby Adverse Drug Reaction Monitoing Centre (AMC).

References: 1. Lewis JD, et al. Pioglitazone use and risk of bladder cancer and other common cancers in persons with diabetes. JAMA 2015;314:265-277

2. www.fda.gov/Drugs/DrugSafety/ucm519616.htm

The Free Style Libre Pro System: A Revolutionary Diabetes Sensing Technology

On 28th September 2016, The US Food and Drug Administration (FDA) has approved the FreeStyle Libre Pro System, developed by Abbott, for use by physicians for monitoring glucose in patients with diabetes.

The FreeStyle Libre is the third "blinded" professional continuous glucose monitoring (CGM) system. Libre does not require finger-stick calibration, has no reusable components requiring disinfection, provides a longer period of data capture (14 days).

The Libre Pro's small round sensor is applied to the back of the patient's arm by a healthcare professional, where it is held in place with adhesive for up to 14 days, measuring and recording interstitial fluid glucose every 15 minutes through a small filament that is inserted just under the skin. The patient does not interact with the device.

After 2 weeks, the patient returns and the doctor uses the device's practice-owned reader to scan the sensor, thereby downloading the glucose data and generating a visual report. The physician can then show the patient the results and discuss them during the visit.

Following are the key advantages of FreeStyle Libre Pro system compared to other professional CGM systems

- Convenient for both the doctor and the patient
- Provides reliable glucose data
- Reduce equipment costs, maintenance and time

India was the first country globally to launch the professional version of the flash glucose monitoring technology by Abbott on 16th June 2015.

Reference:www.accessdata.fda.gov/cdrh_docs/pdf15/p150021c.pdf www.freestyle librepro.us/

DEPARTMENT ACTIVITIES

JSS MINDS Initiative Program

As a part of JSS MINDS (Medication Information for Neuropsychiatric Disorders and Sensitization) Initiative Program, a collaborative initiative of Departments of Clinical Pharmacy & Psychiatry, a Special counter in Psychiatric Outpatient Department at JSS Hospital, Mysuru was inaugurated on 7th October 2016 as a part of World Health Mental day celebration. The objectives of this collaborative initiative program is to provide information and education to patients with mental illness on the safe use of medications, and also to improve medication adherence & quality of life in these patients. Through this initiative, a telephonic reminder on follow up visits & medication refilling information will be provided to the patients through a dedicated phone number. The program was inaugurated by Dr. P. A. Kushalappa, Director (Academics), JSS University, Mysuru. Dr. M. D. Ravi, Director, JSS Hospital, Mysuru was the chief guest, and Dr. H. Basavanagowdappa, Principal, JSS Medical College, Mysuru, and Dr. G. Parthasarathi, Principal, JSS College of Pharmacy, Mysuru were the guests of honour. Dr. M. Ramesh, Professor & Head, Department of Clinical Pharmacy, JSS Hospital and Dr. Rajesh Raman, Professor & Head, Department of Psychiatry, JSS Hospital, and staff and students of Departments of Clinical Pharmacy & Psychiatry were present during this occasion. During the inaugural event Dr. T. S. Sathyanarayana Rao, Professor, Department of Psychiatry welcomed the gathering and Dr. Kishor M, Associate Professor, Department of Psychiatry briefed about the objectives of this program.

Inauguration of JSS MINDS Initiative Program

Faculty Attended to ISPOR 19th Annual European Congress held at Vienna, Austria

International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 19th Annual European Congress was held at Austria Center Vienna, Vienna, Austria from 29th October to 2nd November 2016. Dr. M. Ramesh, Professor & Head, Mr. Himanshu Patel, Assistant Professor and Mr. Krishna Undela, Lecturer, Department of Pharmacy Practice, JSS College of Pharmacy, JSS University, Mysuru attended this congress.

ISPOR conducted short courses on different health economic topics during 29th & 30th October 2016. Dr. M. Ramesh attended short courses on 'Introduction to Health Economics / Pharmacoeconomic Evaluations', 'Mixed Methods Approaches for Patient-Centered Outcomes Research: Group Concept Mapping' and 'Advanced Methods for Addressing Selection Bias in Real-World Effectiveness and Cost-Effectiveness Studies'. Mr. Krishna Undela attended short courses on 'Introduction to Health Economics / Pharmacoeconomic Evaluations' and 'Bayesian Analysis Overview and Application'. These short courses helped them

a lot to understand the basic principles and concepts of Health Economic Evaluations. All three faculties attended ISPOR main congress from 31st October to 2nd November 2016. They got an opportunity to attend all three plenary sessions and some of the educational symposiums, workshops and podium presentations on their areas of interest. In addition to these, exhibition of sponsors and other companies, and poster presentations gave them an opportunity to meet and interact with people from different health care sectors.

During poster sessions, Dr. M. Ramesh presented two papers entitled "Evaluation of Clinical and Economic Impact of Drug Related Problems in the Elderly at Tertiary Care Hospital" and "Implementation of Medication Errors Reporting System by Clinical Pharmacists at Tertiary Care Teaching Hospital: A Pilot Study". Mr. Himanshu Patel presented two papers entitled "Evaluation of Supportive Care in Cancer Patients on Chemotherapy in a Developing Country: A Comparison of Clinical Practice with Standard Guidelines" and "Pharmacotherapy Consultations by Clinical Pharmacists to Improve Quality and Safe Use of Medicines: An Experience from Tertiary Care Teaching Hospital". Mr. Krishna Undela presented two papers entitled "Assessment of Price of Essential Medicines in India" and "Assessment of Prices of Essential Medicines for Chronic Diseases Prevalent in the Asia Pacific Region".

Dr. M. Ramesh and Mr. Krishna Undela were awarded with ISPOR Scholarship to participate in this congress. As privileges of scholarship, both received complimentary registration to short courses and congress along with grant of USD 2,500 to cover up meeting related expenses. Mr. Himanshu Patel received travel grant of Rupees One Lakh from Indian Council of Medical Research (ICMR), New Delhi to cover his congress registration and travel expenses.

The knowledge gained by the staff members in the area of Pharmacoeconomics by attending this international meeting, will be useful for them in teaching and training Pharm.D and M.Pharm students.

Dr. Madhan Ramesh, Mr. Himanshu Patel and Mr. Krishna Undela during the poster presentation

Visit of Students from University of North Carolina, USA

As a part of MoU between JSS University, Mysuru and University of North Carolina, Chapel Hill, USA, two Pharm.D students Mr. Hitesh Rasik Patel and Ms. Jennifer A Voelker from Eshelman School of Pharmacy, University of North Carolina, USA arrived at JSS College of Pharmacy, Mysuru on 3rd October 2016 under student study exchange program. The purpose of the experiential program was to expose the students to an international clinical rotation focused on public health and infectious diseases that are common in developing countries.

UNC Students with Staff of Department of Clinical Pharmacy

The length of the experiential training was for a period of four weeks between 3rd and 28th October 2016. During the training period, students were introduced to various Clinical Pharmacy Services and ambulatory patient care services provided at the experiential study site (JSS Hospital, Mysuru) of JSS College of Pharmacy, Mysuru. Following which, students were posted 10 days each in Medicine and Paediatric Departments. During their clinical posting, they could understand the therapeutic management of most of the common diseases seen in India and appreciate the differences that exist in the management of such diseases in United States.

UNC Students with Students of Department of Clinical Pharmacy

Also, students were exposed to various departments like Pulmonology and Directly Observed Treatment, Short-course centre, Immunization centre, Cardiology, Obstetricts & Gynaecology, Emergency, Psychiatry, Dematology and Gastroenterology. During their clinical posting, students had opportunity to review various clinical cases from the different

departments, and disussed them with their respective facilitators. Also, they had presented a case each on Chronic Obstructive Pulmonary Disease (COPD) and Febrile Seizures at the practice site as part of their clnical assignments required for their posting. Also, they attended the case presentations on all days along with Pharm.D Interns of JSS University, Mysuru.

Also, students were posted to Asha Kirana Hospital and Bharath Hospital & Institute of Oncology for couple of days to gain an understanding of various opportunistic infections associated with HIV and Cancer management, respectively. At the third weekend of their clinical rotation, students visited Govt. Head Quarters Hospital, Ooty which is a practice site of JSS College of Pharmacy, Ooty and it gave them an opportunity to understand the healthcare delivery system at Government settings.

Best Poster Award at European Society for Medical Oncology Asia 2016 Congress

Mr Himanshu Patel, Assistant Professor, Department of Pharmacy Practice has won the Best Poster Award at the European Society for Medical Oncology Asia 2016 Congress held at Singapore from 16-19 December 2016. The title of the poster presented was "Evaluation of Quality of Supportive Care in Cancer Patients receiving Chemotherapy: A experience from developing country". The work was carried out under the guidance of Dr G Parthasarathi, Professor & Principal, JSS College of Pharmacy (JSSCP), Mysuru. The management and Staff of the JSSCP and University congratulated him on this achievement.

Mr. Himanshu Patel during his poster presentation

JSS University Introduces Residency Program in Clinical Pharmacy

JSS University College of Pharmacy, Mysuru introduces residency program in Clinical Pharmacy (Oncology) from November 2016. This two years program enables Pharm.D graduates to gain specialized training in the area of oncology pharmacy in order to achieve the skills and knowledge required to provide clinical pharmacy services in Oncology setting. In the first year of the program, residents will be exposed to clinical pharmacy practice exposure to diverse patient population, drug distribution systems and drug & poison information service. In the second year of the program, residents will be provided training and practice exposure to various oncology pharmacy services in patients with solid tumours, haematological malignancies, bone marrow transplant, pain & palliative care, chemotherapy preparation and intravenous admixtures. Residents will also have opportunity to participate in case discussion, research projects, community awareness programs, journal club and many other patient care activities of the department. This course will prepare specialist pharmacist to deliver competent patient care in cancer patients.

Pharm.D graduates with minimum aggregate marks of 60% and who is a registered pharmacist are eligible to apply for this course. For more information on this course we encourage you to visit our web site www.jsspharma.org or Email: jsscpmy@jssuni.edu.in.

The Drug & Poison Information Service : Our Department can help you with any questions you might have on the use of medicines or the management of poisoned patients. We can also assist you with any medication related problems you face in your daily practice. The services are made available on all working days and it is provided free of cost. We request you to avail the drug and poison information services. : **Toll free - 1800-425-0207; 0821-2335577; Extn. 5577; E-mail:** dic.jsscp@jssuni.edu.in; pic.jsscp@jssuni.edu.in; **Website**: picjsscp.jssuni.edu.in

Your suggestions are welcome. Please send your comments/suggestions to the editors at: dic.jsscp@jssuni.edu.in

To,

_____

_____

_____

Book - Post