KLE College of Pharmacy, Bengaluru

KC General Hospital Malleshwaram

For Comments & Suggestions

Deartment of Pharmacy Practice

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Book-Post

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Pharma Insight

Newsletter

A quarterly News Letter From Dept. of Pharmacy Practice, KLE College of Pharmacy, Bengaluru

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About college

KLE College of Pharmacy is the constituent unit of KLE Academy of Higher Education (Deemed to be University), Belagavi, which is Re-Accredited by NAAC "A" grade by UGC, up to January 2021.We are running B.Pharm, M.pharm ,Pharm. D,PhD in a spacious well-equipped building of its own with hostel, library and sports facilities. The pharmacy curriculum is approved by, Pharmacy Council of India (PCI) & All India Council for Technical Education (AICTE) And the UG programme is accredited by the NBA (National Board of Accreditation), AICTE, New Delhi.

About Department of Pharmacy practice

The Department has a well established drug information centre with good source of information for all healthcare professionals.

The faculty of the Department has the expertise to take up projects in the areas of Clinical Pharmacokinetics, Therapeutic Drug Monitoring, Population Pharmacokinetics, Drug Utilization Evaluation, Adverse Drug Reaction monitoring, improving the Quality of Life of patients through patient education and preparation of guidelines for the rational use of antibiotics.

The Department is associated with K.C.General Hospital,Malleshwaram, Bangalore where the Pharm. D activities are carried out successfully since 2014.

Message from Principal's Desk

It is a happy moment to have the maiden issue of Pharm. D newsletter of KLE College of Pharmacy. The Editorial Team needs to be congratulated for their efforts. The students are being well exposed to the Hospital setup at K.C General Hospital. The interns are having partial access at Aster CMI, Hebbal as well.

We are aware that Doctor of Pharmacy is a professional doctorate in pharmacy. In some countries, it is a first professional degree and a prerequisite for licensing to practice the profession of pharmacy or to become a clinical pharmacist. In many countries they are allowed to practice independently and can prescribe drugs directly to patients. Pharm. D program has significant experiential or clinical education components in introductory and advanced levels for the safe and effective use of drugs. Experiential education prepares graduates to be practice-ready, as they already have spent a significant amount of time training in areas of direct patient care and research.

Pharm. D course was introduced by the Government of India and Pharmacy Council of India in 2008. The Pharm. D program is a pre-PhD, post-graduate professional doctorate of 6 years. It was introduced to improve clinical pharmacy services in India and it is the only pharmacy service which is in direct contact with patient health care system. The first batch of Pharm. D post baccalaureate students graduated in August 2011 and 1st regular batch graduated in June 2014. The Pharm. D degree requires five years of classroom and hospital based didactic study (two years didactic post-baccalaureate course), followed by one year of internship training in hospitals in addition to ongoing practicals and research project. With reference to clarification on Pharm. D qualification, it is clarified to all universities that Pharm. D is a post graduate degree and passing students can directly register for Ph.D from 2012. Pharm. D is approved by PCI in India. After the amendment in August 2019, it is compulsory for hospitals to develop DIC (drug information centre).This DIC will be headed by a Pharm. D holder. Another cadre is created known as Clinical Pharmacist. The only and minimum required educational qualification for this cadre is Pharm. D. The Clinical Pharmacist must also assist the physician and medical representative to promote the wellness and correct use of medications.

Drug Information Centre: The purpose of drug information centre is to provide authentic individualized, accurate, relevant and unbiased drug information to the consumers and healthcare professionals regarding medication related inquiries to the nation for health care & drug safety.

Pharmacovigilance: There is immense need to have Pharmacovigilance Centre for drug safety. Pharmacovigilance heavily focuses on adverse drug reactions or ADRs, which are defined as any response to a drug which is noxious and unintended, including lack of efficacy (the condition that this definition only applies with the doses normally used for the prophylaxis, diagnosis or therapy of disease, or for the modification of physiological disorder function was excluded with the latest amendment of the applicable legislation).

Medication errors such as overdose, misuse or abuse of drug, irrational use of drug during pregnancy and lactation, are also of interest, because they may result in an adverse drug reaction or a negative clinical outcome.

There should be outcome based exposure of the students to the Clinical and Hospital Environment so as to mould them into a good clinical pharmacist.

Good luck and Best Wishes to Team KLE.

Principal KLE

College of Pharmacy, Bengaluru

Corona Virus Outbreak : Guidance for Pharmacists

Corona viruses (CoVs) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). A novel corona virus (nCoV) is a new strain that has not been previously identified in humans. Corona viruses usually affect mammals and birds, causing a variety of lethal diseases. In general, corona viruses cause widespread respiratory, gastrointestinal and central nervous system diseases in humans as well as in animals, threatening human health and causing economic loss from mild upper to lower respiratory tract infections. Corona viruses are capable of adapting to new environments through mutation and recombination with relative ease.

The 2019-nCoV is a novel strain of corona virus that was first detected in the city of Wuhan, in the province of Hubei, in the People's Republic of China a city with a population of 11 million. The outbreak started as pneumonia of unknown causative agent at the end of December 2019.

2019-nCoV Acute Respiratory Disease – clinical information

Onset	Incubation period of 2 to 14 days before the onset of symptoms.
Symptoms	• Fever (>80% of the patients) • Cough (>80%) • Shortness of breath (31%) • Muscle ache (11%)
Complications	Acute respiratory distress syndrome (ARDS) acute renal injury, acute respiratory injury, septic shock and ventilator-associated pneumonia.
Treatment	Supportive care - oxygen therapy, hydration fever/pain management and antibiotics. Intravenous Remdesivir
Prevention	**1**. Frequently clean hands by using alcohol -based hand rub or soap and water; **2**. When coughing and sneezing cover the mouth and nose with a flexed elbow or tissue – throw the tissue away immediately and wash hands; **3.** Avoid close contact with anyone who has fever and cough; **4.** If you have fever, cough and difficulty breathing seek medical care early and share previous travel history with your healthcare provider; **5.** When visiting live markets in areas currently experiencing cases of novel corona virus, avoid direct unprotected contact with live animals and surfaces in contact with animals; **6**. The consumption of raw or undercooked animal products should be avoided. Raw meat, milk or animal organs should be handled with care, to avoid cross-contamination with uncooked foods, as per good food safety practices. **7**. Self isolation

Pharmacy Mediated Activities

Pharmacist and the pharmacy workforce can play a key role in preventing the spread of corona virus 2019-nCoV by:

- Understanding the nature of the disease, how it is transmitted, and how to prevent it from spreading further.
- Knowing how to access national level information sources regarding the 2019-nCoV strategies (including the closest referral centre for 2019-nCoV), and by maintaining currency in that information;
- Informing, advising and educating the community
- Supplying appropriate medical products
- Encouraging individuals and families with suspected cases of 2019-nCoV acute respiratory disease to seek treatment from healthcare facilities.

The WHO recommends that health care workers should be;

Wear a medical mask when entering a room where patients suspected or confirmed of being infected with 2019-nCoV are admitted and in any situation of care provided to a suspected or confirmed case;

Use a particulate respirator at least as protective as a US National Institute for Occupational Safety and Health (NIOSH)-certified N95, European Union (EU) standard FFP2, or equivalent, when performing tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation and bronchoscopy.

Home care for patients with suspected 2019-nCoV infection presenting with mild symptoms

The WHO recommends that suspected cases of 2019-nCoV infection are to be isolated and monitored in a hospital setting to ensure both safety and quality of health care and public health security. However, for several possible reasons, including situations when inpatient care is unavailable or unsafe or in a case of informed refusal of hospitalisation, alternative settings (including the patient's home) for healthcare provision may need to be considered. If such a reason exists, patients with mild symptoms and without underlying chronic conditions such as lung or heart disease, renal failure, or immune-compromising conditions that place them at increased risk of developing complications may be cared for at home.

WHO is providing guidance on early investigations, which are critical to carry out early in an outbreak of a new virus. The data collected from the protocols can be used to refine recommendations for surveillance and case definitions, to characterize the transmission features of 2019-nCoV, help understand spread, severity, spectrum of disease, impact on the community and to implementation of operational models for limiting human-to-human transmission including reducing secondary infections among close contacts and health care workers, preventing transmission amplification events and further international spread. Identify, isolate and care for patients early, including providing optimized care for infected patients, Identify and reduce transmission from the animal source, This can be achieved through a combination of public health measures, such as rapid identification, management of the cases, follow up of the contacts, infection prevention and control in health care settings, implementation of health measures for travellers, awareness-raising in the population and risk communication, Counter measures such as case isolation, contact tracing and isolation.

Ms. Savitha V Nair, V Pharm D
KLE College of Pharmacy

A Day in the life of a Clinical Pharmacist

When I graduated pharmacy school in 2016, I stood with my classmates as we recited the "Oath of a Pharmacist". There is one particular vow that stood out to me as we recited the Oath and I embrace this vow, "I will apply my knowledge, experience, and skills to the best of my ability to assure optimal outcomes for my patients." The profession that I have is so great because it allows me to use my knowledge, abilities, and talents to improve patient outcomes in the hospital in which I am employed as the Senior Clinical Pharmacist at Aster CMI Hospital, Hebbal, Bangalore.

I love being a Clinical Pharmacist because of one incident when a young man whose pain medication I refused to continue to refill as I told him that I was concerned for his health with long-term use. I told him to get a second opinion and suggested some options for him. He came back 4 months later to thank me and to tell me that he was off medications and able to work again.

I have been given the opportunity to become directly involved in my patients' lives, not just in their health care but in every part of their lives and I believe that makes me not only a better Clinical Pharmacist but a better person. I so far, on my personal experience believe that Clinical Pharmacist is unique among healthcare professions as our accessibility naturally allows us the opportunity to do more than just counsel on the proper use of amoxicillin. It allows me to become a problem-solver, a confidant, and a friend, and in that it allows me to do the rest of the job so much more effectively.

I am fortunate enough to work with a multidisciplinary team of Doctors and other departments that teaches me something new each day. Clinical Pharmacists are a trusted liaison between patients and their doctors. As a Sr. Clinical Pharmacist, I am in the perfect position to strengthen the healthcare message by tailoring my recommendations to patients. I also have to make decisions in my work each day that can have a real impact on patient's lives. I evaluate drug interactions to avoid patient harm. I evaluate lab results and blood pressure readings, suggest the alternative safe medications which can be given to the patient based on the diagnosis, an extra safety net for clinicians at my organization, which allows me to recommend therapy changes to improve patient health.

Medication errors are among the most common health threatening mistakes that affect patient care. Medicines cure infectious diseases, prevent problems from chronic diseases, and ease pain. But medicines can also cause harmful reactions if not used correctly.

Errors can happen in the hospital, at the doctor's office, at the pharmacy, or at home. This is one critical area which I take seriously to avoid maximum medication errors in the hospital. I personally meet the concerned doctors, Sr. specialist, resident doctors and junior doctors of each department on a daily/ weekly basis informing them about the importance of medication errors and how to avoid such errors from arising in the medication drug chart and how effective it would bring about the change in patterns of prescribing medications as well as to the patient outcome effectively.

To help other medical professionals in the hospital setup I conduct seminars / classes on various medical related topics such as Medication Errors, Serious Drug – Drug interactions and Drug – Food interactions to update the nursing professionals and doctors on how to bring a change in the patient health care improvement manners which should be looked upon.

Other clinical oriented activities that I go on about doing is, attending daily Doctors ward rounds, answering all drug related queries, attending the Pharmacy and Therapeutic Committee meet on a monthly basis, calculating the exact dose to be given, attending the doctors academic meeting, checking and signing all the crash-cart (emergency medications) in all departments.

On a daily basis I help doctors avoid serious problems by alerting them on overuse or inappropriate combinations of drugs and antibiotics.It's nice to be appreciated when doctors take references from our side based on the appropriate drugs to be prescribed and the possible interactions that can be avoided. Patient counseling is one of the most vital role that we play in the profession. I get to meet people who lack knowledge about their medical conditions and the uncertainty of why they are being prescribed medications and the proper way to take them.

Trust is essential when you are affecting the well-being of a doctor's patient. It takes time to build that trust, but once you are over that barrier, the relationship is very smooth and doctors begin to rely on you, because they know you can provide the same level of care in terms of drug therapy.

My point of view is that if you are working with physicians that have never worked with a clinical pharmacist or that haven't had positive interactions with them, then it can be more challenging to prove your worth but if you position yourself as a competent resource, it won't take long to win their trust.

A kind and humble suggestion to my future Clinical Pharmacist / Junior friends and colleagues: always remember that "We are trusted and we are respected. People are grateful for the drug information we supply. We help to fight drug abuse. We make a difference in people's lives and are a force for good in our communities."It's nice to leave after our shift knowing we have practiced our profession and in all ways, lived up to the Oath to which we all swore.

Above all I take this very moment to step back and extend my gratitude to all my teachers who has taken considerable efforts in making me of who I am today. I will always be grateful for all the support and inspiration they have shown me. It's because of the teachings that I am a responsible person. Mere word could not express how thankful I am for those who helped me climb the ladder of success.

My dad always says that you can learn more with your ears open and your mouth closed. It holds true in the profession I enjoy so much. This is how I practice as a Clinical Pharmacist!

Dr. Renoy Philip, Pharm.D
Sr. Clinical Pharmacist
Aster CMI Hospital, Hebbal

ADR identified during clinical practice

Sl.No.	Brand Name	Generic Name	Category	Indication	Adverse drug reaction
1.	C. Psorid	Cyclosporine	Immunosuppressant	Eczema, heparticum like lesions on lower legs and face	Increased heart rate (113bpm)
2.	T. Eritel- H	Telmisartan+ Hydrochlorthiazide	Antihypertensive	Hypertension	Hyponatremia
3.	Inj. Piptaz	Piperacillin+Tazobactum	Antibiotic	Lower respiratory tract infection	Rashes and Itching
4.	Inj. Phenergan	Promethazine hydrochlride	Antihistamine	Vertibular Neuronitis	Slurred speech, blurred vision, Mild edema
5.	Inj. Larinject	Ferric carboxy maltose	Iron supplement	Iron deficiency anemia	Redness and Itching
6.	Inj. Monocef	Ceftriaxone	Antibiotic	Febrile	Redness and Itching
7.	Inj. Encicarb	Ferric Carboxy maltose	Iron supplement	Iron deficiency anemia	Rashes over hands and thighs

Do you know?

Human saliva contains a painkiller called Opiophin that is roughly six times more powerful than morphine

Colchicine's anti-inflammatory effects hold promise for prevention/ management of cardiovascular conditions, including acute coronary syndromes

Individuals with one sickle cell allele are protected from malaria and do not have sickle cell disease.

Vitamin C

Vitamin C is required for the proper development and function of many parts of the body. It also plays an important role in maintaining proper immune function.

SYNONYMS:

AcideAscorbique, AcideCévitamique, AcideIso-Ascorbique, Acide L-Ascorbique, AcidoAscorbico, Antiscorbutic Vitamin

BRAND NAME:

T.Celin, T.Cevite, T.Limcee, T.Abdee forte, T.Citravate XT, Inj. Vitcofol-C

SIDE EFFECTS:

Some of the side effects of vitamin C are; **1)**Taking vitamin C along with vitamin E and alpha-lipoic acid might worsen mental function in people with Alzheimer disease; **2)**Vitamin C can increase the amount of oxalate in the urine. Too much oxalate in the urine can increase the risk of kidney failure in people with kidney disease; **3)**Taking vitamin C along with vitamin E might worsen psychosis in some people with schizophrenia when taken with antipsychotic drugs.

DRUG INTERACTION WITH VITAMIN C:

Medications for cancer, HIV/AIDS (Protease Inhibitors), Warfarin (Coumadin), Niacin, Medications used for lowering cholesterol (Statins, Fluphenazine (Prolixin), Estrogens, Aluminum

USES

Albuminuria	High Blood Pressure	Wrinkled skin
Atrial Fibrillation	Lead poisoning	Sun Burn
Emptyng the colon before a colonoscopy	Nitrate Tolerance	Erythema
Hemolytic Anemia	Osteoarthritis	Common Cold
High Cholesterol	Pain after surgery	

PEDIATRIC PATIENTS	
Scurvy	Oral or IV 100–300 mg daily for 1 month or until full recovery
Dietary and Replacement Requirements	1) Infants ≤6 months of age: Recommended AI is 40 mg (about 6 mg/kg) daily. 2) Infants 7–12 months of age: Recommended AI is 50 mg (about 6 mg/kg) daily. 3) Children 1–3 years of age: RDA is 15 mg daily. 4) Children 4–8 years of age: RDA is 25 mg daily. 5) Children 9–13 years of age: RDA is 45 mg daily. 6) Boys 14–18 years of age: RDA is 75 mg daily. 7) Girls 14–18 years of age: RDA is 65 mg daily.
ADULT PATIENTS	
Scurvy	Oral or IV 300 mg–1 g daily for 1 month or until full recovery.
Dietary and Replacement Requirements	Oral Men ≥19 years of age: RDA is 90 mg daily. Women ≥19 years of age: RDA is 75 mg daily.

By,
Mr. Nandyala Sunil , Ms. Lydia Esther
Ms. Rachel S. Solomon, Pharm D Interns
KLE College of Pharmacy

Semaglutide – First Oral GLP-1 Agonist

It is the first oral formulation of a GLP-1 receptor agonist for type 2 diabetes. It was approved by the FDA on September 20, 2019.Before this approval, patients had only injectable forms of GLP-1 agonist.
BRAND NAME:-RYBELSUS (ORAL)
DOSAGES:-RYBELSUS:-3mg, 7mg, 14mg

INDICATION:-

For type 2 diabetes mellitus as an adjunct to diet and exercise

MECHANISM OF ACTION:-

Semaglutide is a glucagon-like peptide-1(GLP-1) receptor agonist that reduces fasting and post prandial blood glucose by stimulating insulin secretion and lowering glucagon secretion.

PHARMACOKINETICS

Absorption

Subcutaneous:-Bioavailability-89%, peak plasma time-1-3days
Oral:-Bioavailability-0.4-1%, peak plasma time-1hr
DISTRIBUTION:-Protein binding :> 99 %(bound to plasma albumin)

Metabolism:-

Proteolytic cleavage of the peptide backbone and sequential beta-oxidation of the fatty acid side chain.
Excretion:-Primary excretion route are urine and feces
Half-life:-1week.

ADMINISTRATION

RYBELSUS:-3mg once daily for 30 days then increase to 7mg once daily. Glycemic control not achieved then increase the dose to 14mg once daily.

SIDE EFFECTS

RYBELSUS:-nausea, abdominal pain, vomiting, diarrhea

CONTRAINDICATIONS:-

Not indicated for type 1 diabetes, diabetic ketoacidosis and patients who had medullary thyroid carcinoma and multiple endocrine neoplasia syndrome type2.

CLINICAL TRIALS

Semaglutide versus Liraglutide:-
Semaglutide was non-inferior in HbA1C and weight to Liraglutide

Semaglutide versus Sitagliptin :-

Semaglutide had additional lowering of 0.3-0.5% HbA1C and 1.6-2.6kg weight compared to Sitagliptin

Semaglutide versus Empaglifloxacin:-

Semaglutide showed additional lowering of 0.5 % HbA1C and 0.9kg weight than empaglifoxacin.

MONITORING PARAMETERS

- HbA1C
- Hypoglycemic symptoms
- Monitor for serum calcitonin levels
- Monitor the renal function in patients with renal impairment
- Monitor for signs and symptoms of pancreatitis

REFERENCES

www.fda.gov
www.thelancet.com

By,
Ms. Merine Shine
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Post exposure prophylaxis to needle prick

Needle stick injuries are known to occur frequently in healthcare settings and can be serious. More than 20 blood-borne pathogens might be transmitted from contaminated needles or sharps, including human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). The portal of entry must include: percutaneous, mucous membrane or cutaneous exposure with non-intact skin to body fluids. Body fluids known to transmit HIV are: Blood, semen, vaginal fluids, amniotic fluids, breast milk, cerebrospinal fluid, pericardial fluid, peritoneal fluid, pleural fluid and synovial flood. Saliva, vomitus, urine, feces, sweat, tears and respiratory secretions do not transmit HIV (unless visibly bloody). The risk of HBV and HCV transmission from non-bloody saliva is negligible. If the exposure does not encompass both the portal of entry and the body fluids at risk listed above, there is no risk of transmission and further evaluation is not required.

However, today the major concern after a needle stick injury is not HIV but hepatitis B or hepatitis C. Guidelines have been established to help healthcare institutions manage needle stick injuries and when to initiate post-exposure HIV prophylaxis. The Centers for Disease Control and Prevention (CDC) has developed a model which helps healthcare professionals know when to start antiretroviral therapy. Healthcare professionals at the highest risk for needle stick injuries include surgeons, emergency room workers, laboratory room professionals and nurses.

Pre-hospital Care

Wash wounds with warm water and soap. Do not use antiseptics or skin wash (bleach, chlorine, alcohol, betadine) if the exposure is mucosal, including the eyes or if the wound is large enough to irrigate, irrigate with copious amounts of saline or other clean fluid.

CDC three-step risk assessment

Step 1: Determine exposure code

Step 2: Determine HIV status code

Step 3: Match exposure code with HIV status code to determine if any post exposure prophylaxis is indicated

Medications:

- Diphtheria and tetanus toxoids
- Tetanus immune globulin(HyperTET S/D)
- Hepatitis B vaccine (Recocombivax HB, Engerix-B)
- For adults, the backbone regimen is tenofovir 300 mg daily plus emtricitabine 200 mg daily plus either raltegravir 400 mg BID or dolutegravir 50 mg daily.

PATHOGEN	Infection risk after needle stick	Post exposure prophylaxis	
		What to do?	When to act?
Human immunodeficiency virus (HIV)	0.3%	A four-week Course of a Combination Of either 2 or 3 retroviral Drugs determined on a case-by-case basis.	As quickly as possible, preferably within hours.
Hepatitis B Virus (HIB)	Approximately 0% with PEP; 6% to 30% without PEP	HB1G' alone Or in combination With vaccine(if not Previously Vaccinated.	Preferably within 24 hrs, no later than seven days
Hepatitis C Virus (HCV)	1.8%	No recommenda-tion	N/A

References:

www.ncbi.nlm.nih.gov·

www.cancertherapyadvisorcom·

http://emedicine.medscape.com

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(PEP) -NACO guidelines

By,

Ms. Manisha Mohanan

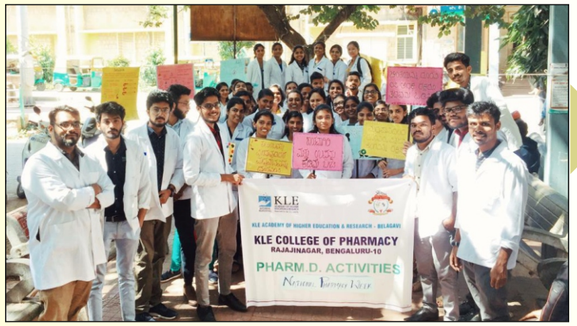
Pharm. D Intern

KLE College of Pharmcy

Department Activities

World Aids Day Awareness Programme

World Alzheimer's Day Awareness Programme



World Pharmacist Day Celebration

Guest Lecture By Dr. Raju Koneri

Guest Lecture By Dr. Harsha Doddihal