A NEWSLETTER BY DEPARTMENT OF PHARMACY—SIH

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Drug and Poison Information Centre, Department of Pharmacy Services, Shifa International Hospitals Ltd.
H-8 /4, Islamabad - Pakistan
Tel: +92-51-846-3492, 3005, 3977
Email: drug.information@shifa.com.pk

For Comments/Feedback:
Please contact on above extension or email

Inside this issue

Benefits of Olanzapine in Palliating Symptoms

Bushra Anjum, Principal Oncology Pharmacist

Olanzapine has become a major drug in the management of chemotherapy-induced nausea/vomiting (CINV) as a prophylactic agent. In addition, a recent randomized trial

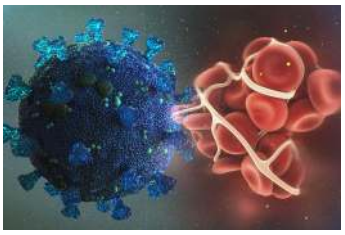
demonstrated its benefits in treating CINV associated with advanced cancer. As a result, since it treats multiple symptoms associated with advanced cancer, it is likely to become the antiemetic of choice in palliative care. The added benefit of treating insomnia and the avoidance of benzodiazepines, stimulation of appetite, lack of potentiation of respiratory depression of opioids unlike benzodiazepines, benefits of adding olanzapine to potent opioids are that it may reduce craving, drug cues, and opioid misuse etc. can make it a better choice. Hopefully, future trials will explore this in greater depth.

Reference: Davis, M.P., Sanger, G.J. The Benefits of Olanzapine in Palliating Symptoms. Curr. Treat. Options in Oncol. 22, 5 (2020)

Potential Role of Coagulation Factor Xa in the Pathophysiology of COVID-19

Muhammad Awais, Clinical Pharmacist ICU/Anticoagulation

The coagulation factor Xa (FXa), a serine protease, has been shown to play a role in the cleavage of SARS-CoV-1 spike protein (SP), with the inhibition of FXa resulting in the inhibition of viral infectivity. FX is known to be primarily produced in the liver, but it is also expressed by other cells including alveolar epithelium, cardiac myocytes, and macrophages. Since patients with cardiopulmonary disease, are at an increased risk of severe COVID-19, The increased levels of FX in these patients, results in a potential increased propensity to have a higher infectious rate and viral load, increased activation of coagulation and inflammation, and development of fibrosis.



Based on this information, the administration of FXa Inhibitors (Rivaroxaban, apixaban, edoxaban) may be a potential prophylactic and therapeutic treatment for COVID-19, resulting in the reduction of cell infectivity and, therefore, viral load, as well as the reduction in systemic inflammation and coagulation. Further studies, exploring the role of coagulation factors in COVID-19 and the potential of FXa Inhibitors as therapeutic agents, alone and in combination with other therapeutics, are warranted.

Ref: https://www.thieme-connect.com/products/ejournals/html/10.1055/s-0040-1718415

Shifa observed **World Antibiotic Awareness Week**. Doctors, Pharmacists & Nurses conducted an awareness walk within the hospital that included addressing patients in the premises & visiting doctors in their clinics to take pledge that they will play their part in rational and judicious use of antimicrobials !

New KDIGO Guideline For Management of Diabetes In Patients With CKD

Rehan Anjum, Clinical Pharmacist Renal Transplant

Globally, more than 450 million persons have diabetes (>8%), with projected growth to more than 700 million by 2045. The Kidney Disease: Improving Global Outcomes (KDIGO) organization has developed its first clinical practice guideline in 2020 for the management of patients with diabetes and chronic kidney disease (CKD). The guidelines have been published in the Annals of Internal Medicine. The guideline includes 12 recommendations and 48 practice points for clinicians caring for patients with diabetes and CKD.

Summary of the recommendations are as below:

Comprehensive Care:

1. Treatment with an ACE-I or an ARB be initiated in patients with diabetes, hypertension, and albuminuria, and that these medications be titrated to the highest approved dose that is tolerated (1B).
2. Patients with diabetes and CKD who use tobacco are advised to quit using tobacco products (1D).

Glycemic Monitoring and Targets: Hemoglobin A1c (HbA1c) to monitor glycemic control in patients with diabetes and CKD is recommended (1C). An individualized HbA1c target ranging from <6.5% to <8.0% in patients with diabetes and CKD not treated with dialysis (1C).

Lifestyle Interventions:

1. Suggested maintaining a protein intake of 0.8g protein/kg (weight)/d for those with diabetes and CKD not treated with dialysis (2C).
2. Suggested that sodium intake be <2 g of sodium per day (or <90 mMol of sodium per day, or <5 g of sodium chloride per day) in patients with diabetes and CKD (2C).
3. Recommended that patients with diabetes and CKD be advised to undertake moderate-intensity physical activity for a cumulative duration of at least 150 minutes per week, or to a level compatible with their cardiovascular and physical tolerance (1D).

Anti-Hyperglycemic Therapies:

1. Recommends treating patients with type 2 diabetes, CKD, and an eGFR ≥30 mL/min per 1.73 m^2 with metformin (1B) or with an SGLT2i (1A).
2. In patients with type 2 diabetes and CKD who have not achieved glycemic targets despite use of metformin and SGLT2i, or are unable to use those medications, we recommend a long-acting GLP-1 RA (1B).

Reference: https://medicaldialogues.in/nephrology/guidelines/new-kdigo-guideline-for-management-of-diabetes-in-patients-with-ckd-71282

eShifa, a home, and digital healthcare brand has become the 1st ever Joint Commission International (JCI) accredited services provider in Pakistan and across the South Asia region.

Shifa Pharmacy is playing a pivotal role in this service through provision of: Medicines Home Delivery, Home Chemo, Home Vaccination, Home Covid Patients Care, Home TPN and Palliative care, Home Peritoneal dialysis supplies, patient counseling and much more….

(for Details or for Booking of service visit: https://www.shifa.com.pk/eshifa/)

INNOVATION IN PHARMACY
1st INTERNATIONAL CONFERENCE
18-19th SEPTEMBER 2020

TOP 3 POSTER PRESENTERS

In a Virtual International Pharmacy Conference, 2 of our posters presented by our clinical pharmacy team secured places in Top 3!

Poster Topic:

- Adherence to Linezolid prescribing guidelines
- Monitoring of Daily Defined Dose (DDD) indicator in Shifa

Dr. Javeria Khalid
Shifa International Hospital

Dr. Munazza Quraishi
Tabba Heart Institute

Dr. Rehan Anjum
Shifa International Hospital

12 Ways to Prevent Diabetes

Misbah Riaz, Staff Pharmacist, Take Home Pharmacy

1. Cut Sugar and Refined Carbs from Your Diet: Avoiding refined carbs and sugar foods may help reduce your risk for developing diabetes. An analysis of 37 studies found that people with the highest intakes of fast-digesting carbs were 40% more likely to develop diabetes than those with the lowest intakes.

2. Work Out Regularly: One study in people with prediabetes found that moderate-intensity exercise increased insulin sensitivity by 51% and high-intensity exercise increased it by 85%. However, this effect only occurred on workout days

3. Drink Water as Your Primary Beverage: One large observational study looked at the diabetes risk of 2,800 people. Those who consumed more than two servings of sugar-sweetened beverages per day had a 99% increased risk of developing latent autoimmune diabetes of adults (LADA) and a 20% increased risk of developing type 2 diabetes.

4. Lose Weight If You're Overweight or Obese: One study of more than 1,000 people with prediabetes found that for every kilogram (2.2 lbs) of weight participants lost, their risk of diabetes reduced by 16%, up to a maximum reduction of 96%.

5. Quit Smoking: Smoking is strongly linked to the risk of diabetes, especially in heavy smokers. In an analysis of several studies totaling over one million people, smoking was found to increase the risk of diabetes by 44% in average smokers and 61% in people who smoked more than 20 cigarettes daily.

6. Follow a Very-Low-Carb Diet: Following a ketogenic or very-low-carb diet can help keep blood sugar and insulin levels under control. Use ketogenic diet after taking advice from experts (doctors or nutritionist)

7. Watch Portion Sizes: A two-year study in prediabetic men found that those who reduced food portion sizes and practiced other healthful nutrition behaviors had a 46% lower risk of developing diabetes than the men who made no lifestyle changes

8. Avoid Sedentary Behaviors: Avoiding sedentary behaviors like excessive sitting has been shown to reduce your risk of getting diabetes (as high as 91%!). Changing sedentary behavior can be as simple as standing up from your desk and walking around for a few minutes every hour.

9. Eat a High-Fiber Diet: Consuming a good fiber source at each meal can help prevent spikes in blood sugar and insulin levels. Most unprocessed plant foods contain fiber, although some have more than others. In the digestive tract, soluble fiber and water form a gel that slows down the rate at which food is absorbed. This leads to a more gradual rise in blood sugar levels

10. Optimize Vitamin D Levels: Controlled studies have shown that when people who are deficient take vitamin D supplements, the function of their insulin-producing cells improves, their blood sugar levels normalize and their risk of diabetes reduces significantly. Good food sources of vitamin D include fatty fish and cod liver oil.

11. Minimize Your Intake of Processed Foods: Minimizing processed foods and focusing on whole foods with protective effects on health may help decrease the risk of diabetes. One study found that poor-quality diets that were high in processed foods increased the risk of diabetes by 30%. However, including nutritious whole foods helped reduce this risk.

12. Drink Coffee or Tea:

Although water should be your primary beverage, research suggests that including moderate amount of coffee or tea in your diet might help to reduce risk of diabetes. But again, consult your healthcare provider to check if there are no other contraindications to consume tea/coffee.

References: *Healthline.com, PubMed*

Shifa Pharmacy is proud to launch ..

Electronic Medication Reconciliation

How it works: Prior to Admission (PTA) medicines can now be entered by doctors via CPOE system. Doctor will decide the fate of each medicine (continue during admission, discontinue or hold) online, and list in real time is shared on Pharmacy system. Pharmacists are able to view the PTA meds list alongside of admission orders where s/he can reconcile them, rectify the issues in coordination with doctors and record the interventions! The system can also generate reports to show the %reconciled orders along with time targets!

Camera Assisted Verification of Chemo Admixture:

How it works: Pharmacists do verification of correct chemo preparation as per doctor's order through online pictures exchange b/w preparation and processing areas in Chemo pharmacy. This adds a 3rd tier of safety check to ensure that chemo is prepared with correct drug, in correct volume/strength and proper diluent

Kudos to the team who made it possible (Junaid Ali, Bushra Anjum, Faisal Aziz Sandeela)

Colistin (Polymyxin E) vs. Polymyxin B, Same or different?

Zeeshan Ali, Staff Pharmacist, ER Pharmacy

Polymyxins are a group of polypeptide antibacterials that include polymyxin A, B, C, D, E, etc. The two polymyxins that are used clinically are **polymyxin B and polymyxin E (also known as colistin)**. These compounds, which were originally isolated in 1947 from a Bacillus polymyxa, became obsolete due to their toxicities, but now have generated interest due to the predominance of infections caused by multidrug-resistant organisms. Due to their similarities in structure, polmyxin B and colistin have been regarded as being equivalent, but **differences in their pharmacokinetics have significant clinical implications for their use** .

Mechanism of action:

Polymyxin B and colistin both are rapidly **bactericidal** against susceptible organisms, binding to the lipopolysaccharides and phospholipids in the outer cell membrane of Gram-negative bacteria. This displaces calcium and magnesium from the phosphate group of membrane lipids, which leads to disruption of the outer cell membrane, resulting in leakage of intracellular contents, and finally bacterial death.

Pharmacokinetics:

Both Polymyxin B and colistin are not well absorbed after oral administration. **Intravenous polymyxin B is administered directly as active drug (**as a sulfate salt**),** whereas colistin in the form of colistin methanesulfonate (also known as CMS or colistimethate). **CMS is administered as the pro-drug that converts into the active moiety colistin**. The prodrug CMS is cleared predominately by renal excretion via tubular secretion and its other non-renal excretion is conversion to active colistin. The pharmacokinetic differences make **CMS/colistin the preferred formulation for infections that require a high urinary concentration.**

The kinetics of **polymyxin B are preferable for systemic infections due to the rapid and reliable active drug concentration achieved in the serum**, compared to the variable rate and extent of conversion with CMS to colistin.

Two recent comparative studies involving a large number of patients reported **lower rates of nephrotoxicity with polymyxin B than colistin,** possibly due to higher exposure of colistin in the kidneys from CMS excretion compared to polymyxin B, which is not renally cleared.

CONCLUSION

Polymyxin B and colistin have re-emerged as important antimicrobial agents due to multidrug-resistant Gram-negative infecions. Polymyxin B has more predictable systemic drug exposure compared to colistin; however, colistin is preferred for the treatment of UTIs as the prodrug CMS is renally excreted. In terms of toxicities, recently published studies have shown comparable and possibly less nephrotoxicity with Polymyxin B.

Reference: *Oliveira MS, Prado GV, Costa SF, et al. Polymyxin B and colistimethate are comparable as to efficacy and renal toxicity. Diagnostic Microbiol Infect Dis 2009;65:431-434. Uptodate,* International Consensus Guidelines for the Optimal Use of the Polymyxins

Formulary Updates (Visit Shifa Intranet Home Page—click Medication Updates for details)

Brand	Generic	Class	Indications
Tamsolin-S	Tamsolusin + Solifenacin	Combination Product	BPH and LUTS
Nimenrix Vaccine	Meningitis Vaccine	Vaccine	Vaccination from age of 6 weeks (unlike Menactra)
Attentra Tab 10 mg	Atomexetine	Selective norepinephrine reuptake inhibitors	ADHD
Pirfenox 200 mg Tab	Pirfenidone	Pyridones	Idiopathic Pulmonary Fibrosis
Xultrophy Insulin (100 IU/3.6 mg)	Degludec + Liraglutide	Insulin + GLP 1 Agonist	Diabetes

Looking for Your Valuable Feedback

We want to bring to you valuable, updated and interesting information via Pharmacy Newsletter, so please spare some time to provide your valuable feedback in the form of comments or suggestions. Its your newsletter and with your help we'll make it better!

*Kindly send us your **comments/suggestions** via email at : **drug.information@shifa.com.pk***

Thank you , we are looking forward for your valuable feedback.