12-2018

Pharmacy Newsletter : December 2018

Pharmacy Department

PHARMACY NEWSLETTER

December, 2018 Vol. 30, Issue 03

Published by
Drug & Poison Information Centre
Pharmacy Services
Aga Khan University Hospital Stadium Road, P.O. box 3500, Karachi 74800, Pakistan

Pharmacy Newsletter provides information regarding the decisions of P & TC, current concepts in drug therapy, warnings and cautions issued by various regulatory agencies, drug interactions, ADRs and matters related to drug usage.

Opinions expressed are of authors and does not necessarily represent AKUH's view/recommendations.
Publication of this newsletter has been through an endowment grant from Pharmacist group of Ontario, Canada

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Seizure Prophylaxis in Adult Traumatic Brain Injury

Dr Faisal Khan, Phr Muhammad Amir,

Traumatic brain Injury (TBI) bears a high risk of seizures due to focal and diffuse brain tissue damage. Post traumatic seizure (PTS) can be classified into early (within 7 days) and late (after 7 days). Different anticonvulsants are available for prophylactic treatment. To ensure evidence based prescribing of seizure prophylaxis therapy in Adult Traumatic Brain injury within the surgical intensive Care Unit (SICU). Guideline recommends phenytoin as First line therapy and levetiracetam as second line therapy for 7 days.
Early Traumatic Brain Injury for Adult

	Phenytoin	Levetiracetam
Loading Dose:	17mg/kg (15-20mg /kg)	20mg/kg lV (rounded to 250mg)
Maintenance Therapy:	5 mg/kg/day three divide doses (normally 1OOmg-three times daily) should be commenced within 12 - 24 hours	1000 twice daily

For Late PTS, neurological consult should be taken

Reference

http://betaportal.aku.edu/GISurgery/Key%20Documents/Policies,%20Procedures,%20Protocols,%20Clinical%20Practice%20Guideline/Guideline%20for%20seizure%20prophylaxis.pdf

Tizanidine and Ciprofloxacin – Serious Drug Interaction

Zainab Qadir, In-patient Pharmacist

A case reported that concomitant use of ciprofloxacin and tizanidine resulted in significant bradycardia, hypotension and hypothermia. Ciprofloxacin is a moderately potent inhibitor of CYP1A2 where is Tizanidine, is mainly metabolized by it. Ciprofloxacin may greatly elevates plasma concentrations of tizanidine and dangerously potentiates its hypotensive and sedative effects, at least when administered 1 hour before tizanidine.

References

1. *Granfors MT, Backman JT, Neuvonen M et al: Ciprofloxacin greatly increases concentrations and hypotensive effect of tizanidine by inhibiting its cytochrome P450 1A2-mediated presystemic metabolism. Clin Pharmacol Ther December, 2004; 76(6):598-606.*
2. *Momo K, Homma M, Kohda Y et al: Drug interaction of tizanidine and ciprofloxacin: case report. Clin Pharmacol Ther Dec 1, 2006; 80(6):717-719.*

Seasonal Flu and Influenza Vaccine in Healthcare Workers

Hafsah M Ashfaq, Clinical Pharmacist

Influenza is a respiratory condition caused by influenza A or B viruses. It's an epidemic illness occur usually in winters. Influenza viruses change their antigenicity frequently. That's why Annual influenza vaccination is recommended to prevent flu infections.

High Risk Individuals:

- Children <5 years, but especially <2 years*
- Adults ≥65 years of age
- Women who are pregnant or up to two weeks postpartum
- Healthcare workers
- Individuals at increased risk for severe influenza (e.g., immunocompromised; chronic cardiovascular, pulmonary, or metabolic disease; pregnancy)

** In young children, rates of hospitalization and mortality are greatest among those <6 months of age.*

Influenza infection in healthcare workers and patients is common, and the CDC has published detailed guidelines for the prevention and control of nosocomial influenza. The American Academy of Pediatrics, American College of Physicians, American Public Health Association, Infectious Diseases Society of America, and Society of Healthcare Epidemiology of America have all endorsed mandatory influenza vaccination for all health care workers. Influenza vaccination results in fewer influenza infections and fewer missed days from work in such individuals.

Vaccination Schedule: Outbreaks of influenza generally occur during the winter months in the northern and southern hemispheres (which occur at different times of the year). A single dose of an influenza vaccine should be administered annually and should ideally be offered before the onset of influenza activity in the community (by the end of October in the northern hemisphere and by April in the southern hemisphere).

Adverse Reactions: The inactivated influenza vaccines are generally well tolerated, with the most common side effect being arm soreness at the injection site (in 64 percent of vaccine recipients). In clinical trials, serious adverse events have been reported rarely.

Contraindications & Precautions: Influenza vaccination is contraindicated in patients who had an anaphylaxis reaction to an influenza vaccine.

Patients on anti-coagulants e.g. warfarin can safely receive the influenza vaccine. Few steps should be taken to reduce the risk of hematoma in such patients, like small-gauge needles when possible and applying firm pressure (without rubbing) to the vaccination site for at least two minutes after vaccination.

Egg allergy component varies with different manufacturing brands.

References:

- *World Health Organization (WHO): Recommendations for routine immunization (2018)*
- *WHO: Position paper on vaccines against influenza (2012)*

Raised Concerns on Quinolones for Hypoglycemia and Psychiatric Adverse Effect

Muhammad Amir, Specialist

FDA has released safety concerns for all Quinolones, antibacterial drug, for its hypoglycemic and psychiatric adverse effect. This concern have also brought changes in these medication product literature. Research by FDA identified association of fluoroquinolones with hypoglycemic coma (56 reports from October 1987 through April 2017, and 11 additional cases in the medical literature). It is suggested that fluoroquinolones is insulinotropic effect. Six psychiatric adverse effects (disturbance in attention, memory impairment, delirium, nervousness, agitation, and disorientation) has been affiliated with these drugs. These effect may appear even after the first dose.

References:

U.S. Food and Drug Administration (2018, July07). FDA reinforces safety information about serious low blood sugar levels and mental health side effects with fluoroquinolone antibiotics; requires label changes: Safety Communication - May Interfere with Lab Tests. Retrieved from https://www.fda.gov/downloads/Drugs/DrugSafety/UCM612834.pdf

Rabies Immunization: Recommendations WHO 2018

Bilal Ahmad: Drug Information Pharmacist

Rabies is a viral infection caused by animal attacks, responsible for an estimated 59 000 human mortalities and over 3.7 million disability-adjusted life years (DALYs) lost every year. Rabies is almost invariably fatal once clinical manifestation happens, as a result of acute progressive encephalitis. WHO recommend pre-exposure vaccination to peoples prone to rabies infections. RABIES immunization is achieved via Pre-exposure and Post-exposure prophylaxis.

Post-Exposure Prophylaxis (PEP). In PEP both vaccine and immunoglobulin are administered according to the category of exposure: Which is classified as;

Category I exposure is touching or feeding animals or licks on intact skin (no exposure). Category II: nibbling of uncovered skin, minor scratches or abrasions without bleeding (exposure). Category III: single or multiple bites or scratches, contamination with saliva by licking of mucous membrane or broken skin and direct contact with bats (severe exposure).

Animals causing Rabies

MONKEY	CAT	BAT	DOG	BUFFALO	MULE
WOLF	FOX	MANGOOSE	HORSE	BEAR	

	Category I exposure	Category II exposure	Category III exposure
Immunologically naïve (Not immunized Previously) individuals of all age groups	Wash exposed skin surface. No PEP required	Wound washing and immediate vaccination: ID at 2-sites on days 0, 3 and 7 **OR** IM at 1-site on days 0, 3, 7 and between day 14-28 **OR** IM at 2-sites on days 0 and 1-site IM on days 7, 21 **RIG is not indicated.**	Wound washing and immediate vaccination ID at 2-sites on days 0, 3 and 7 OR IM at 1-site on days 0, 3, 7 and between day 14-28 OR IM at 2-sites on days 0 and 1-site IM on days 7, 21 **RIG administration is recommended.**

Previously immunized individuals of all age groups	Wash exposed skin surfaces No PEP required.	Wound washing and immediate vaccination; ID at 1-site on days 0 and 3; **OR** ID at 4-sites on day 0; **OR** IM at 1-site on days 0 and 3); **RIG is not indicated.**	Wound washing and immediate vaccination*: ID at 1-site on days 0 and 3; **OR** ID at 4-sites on day 0; **OR** IM at 1-site on days 0 and 3; **RIG is not indicated.**

RABIES Immunoglobulin: RIG are injected around the wound once with dosage of equine-RIG 40IU/kg and human-RIG 20mg/kg as soon as possible after the initiation of PEP and not beyond day 7 after the first dose of vaccine and the remainder of the calculated dose of RIG does not need to be injected IM at a distant site, aseptic syringe can be used for other patients. Properly administered, RIG neutralizes the virus at the wound site within a few hours.
Pre-Exposure Prophylaxis: Pre-exposure prophylaxis (PrEP) is the administration of several doses of rabies vaccine before exposure to Rabies virus. It is highly recommended for individuals or professionals who are at increased risk for rabies exposure i,e living in rabies endemic areas.

For immunologically naive individuals WHO Recommend: Intradermal at 2- sites or a 1-site IM vaccine administration on days 0 and 7. For In immunocompromised individuals' a third dose is administered between Day 21 and 28. Additionally, in the event of an exposure, a complete PEP course, including RIG, is recommended.

Remember: I. Vaccination schedule should be resumed no restarted after the dose is missed. II. Route and vaccine product can be changed during the course, if unavoidable. III Intradermal dose is 0.1ml while for IM whole vial is administered. IV. In all age groups ID (Intradermal) is given in deltoid region while IM is given in deltoid region and anterolateral area of thigh for <2 years.

References:

1. *https://www.who.int/immunization/policy/position_papers/pp_rabies_summary_2018.pdf*
2. *Tarantola A. Four Thousand Years of Concepts Relating to Rabies in Animals and Humans, Its Prevention and Its Cure. Trop Med Infect Dis. 2017; 2, 5.*
3. *WHO Expert Consultation on Rabies, third report: WHO Technical Series Report, Geneva 2018 (in press) ISBN 978-92-4-121021- 8*

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