KEPPRA IVPB  
(Levetiracetam)

MARCH MED  
OF THE MONTH

May now be given in Med-Surg and Telemetry

LEVETIRACETAM

U.S. Brand Names: KEPPRA IVPB  
Therapeutic Class: Pyrrolidine derivative, Anticonvulsant

**Background:**  
May act by inhibiting simultaneous neuronal firing that leads to seizure activity. Antiepileptic activity may be related to its ability to inhibit polysynaptic responses and block posttetanic potentiation. Levetiracetam did not inhibit single seizure induced by maximal stimulation with electrical current or different chemo convulsants and showed only minimal activity in submaximal stimulation and in threshold tests.
Uses/ Indications
- Adjunctive therapy for myoclonic seizures of juvenile myoclonic epilepsy.
- Adjunctive therapy for primary generalized tonic-clonic seizures.
- Adjunctive treatment for partial-onset seizures in patients with epilepsy.

Dosage and Administration:
Initial Exposure to Levetiracetam:
- Partial onset seizure: 1000mg/day, given as twice-daily dosing (500mg twice daily), increased as needed and as tolerated in increments of 1000mg/day additional every 2 weeks to a maximum recommended daily dose of 3000mg.
- Myoclonic Seizures in patients with Juvenile Myoclonic Epilepsy: 1000mg/day, given as twice-daily dosing (500mg twice daily), increased by 1000mg/day every 2 weeks to recommended daily dose of 3000mg.
- Dose is diluted in 100 ml NS or D5W, to infuse over 15 minutes

Replacement Therapy:
When switching from oral levetiracetam, the initial total daily intravenous dosage of Levetiracetam should be equivalent to the total daily dosage and frequency of oral Levetiracetam. Dose should be taken at the same time every day. Administer without regard to meals. If GI upset occurs may give with food; Tablets should not be broken, crushed or chewed, administer whole. An oral solution is available for children or adults, use a calibrated measuring device like an oral syringe when measuring the liquid

Administration I.V. Dilutions:
- Dose is diluted in 100 ml NS or D5W, to infuse over 15 minutes
- Keppra IVPB can now be given Med-Surg and Telemetry Units.
- Reserve I.V. use for short term, when oral administration is not feasible; revert to oral use as soon as patient is able.
- Levetiracetam injection was found to be physically compatible and chemically stable when mixed in NS, D5W or Lactated Ringers Inj for at least 24 hours and stored in polyvinyl chloride (PVC) bags at controlled room temperature.

Adverse effects:
- CNS: Dizziness, headache, vertigo, nervousness, fatigue somnolence, ataxia, diplopia, behavior problems including aggression, agitation, and irritability. Increased risk of suicidal thoughts/behavior.
- Dermatologic: Pruritus, eczema, toxic epidermal necrolysis (TEN), Stevens-Johnson syndrome.
- GI: Dyspepsia, vomiting, nausea, constipation anorexia, upper abdominal pain.
- Respiratory: Rhinitis, pharyngitis
- Cardiovascular: Increased blood pressure.
**Warning and precautions:**
- Do not stop drug abruptly. Risk of seizure precipitation, withdraw gradually and withdrawal seizure.
- Offer support and encouragement for dealing with epilepsy and Neuropsychiatric adverse drug effects.
- Hepatic abnormality.
- Patients with renal impairment may require reduced dose.
- Overdose signs and symptoms: Drowsiness, aggression, agitation, coma, and depressed level of consciousness, respiratory depression, and somnolence. Drug rash, eosinophilia and systemic symptoms may lead to life threatening reaction.

**Contraindication:**
- Contraindicated in patients hypersensitive to drug.
- Use cautiously in immunocompromised patients, such as those with cancer or HIV infection.
- Leukopenia and neutropenia have been reported with drug use.
- Overdose signs and symptoms: Drowsiness, aggression, agitation, coma, depressed level of consciousness, respiratory depression, and somnolence.
- Use cautiously in patients with history of psychiatric symptom, especially psychotic symptoms and behaviors.

**Nursing implications:**
- Seizure can occur if drug is stopped abruptly and tapering is recommended.
- Monitor patient closely for such adverse reactions for changes in behavior (e.g. aggression, agitation, anger, anxiety, apathy, depression, hostility and irritability) and in rare cases patients may experience psychotic symptoms.
- Monitor patients to immediately report symptoms of depression/or suicidal ideation and suicidal attempt.
- Monitor patients closely for dizziness and somnolence.
- Patients should be advised that do not take this drug if you are pregnant or plan to become pregnant, serious fetal effects can occur, using barrier contraceptives is recommended.
- Establish safety precautions if CNS vision or coordination change occurs, use side rails, accompany patient when ambulating.

**References:**
- Sun Pharmaceutical Industries Limited. Lexicomp online, 2014
- Micromedex Drug Summary, Lippincott, Williams and Wilkins, 2011

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