

LEVETIRACETAM SYRUP/TAB

Class: Anticonvulsant

Indications: Adjunctive therapy in the treatment of partial onset, myoclonic, and/or primary generalized tonic-clonic seizures

Available dosage form in the hospital: 500MG TAB, SYRUP

Trade Names:

Dosage: **Note:** When switching from oral to I.V. formulations, the total daily dose should be the same.

-Myoclonic seizures:

-Oral: Immediate release: Initial: 500 mg twice daily; may increase every 2 weeks by 500 mg/dose to the recommended dose of 1500 mg twice daily. Efficacy of doses other than 3000 mg/day has not been established.

-I.V.: Initial: 500 mg twice daily; may increase every 2 weeks by 500 mg/dose to the recommended dose of 1500 mg twice daily. Efficacy of doses other than 3000 mg /day has not been established.

-Partial onset seizures:

- Oral:

-Immediate release: Initial: 500 mg twice daily; may increase every 2 weeks by 500 mg/dose to a maximum of 1500 mg twice daily. Doses >3000 mg/day have been used in trials; however, there is no evidence of increased benefit.

-Extended release: Initial: 1000 mg once daily; may increase every 2 weeks by 1000 mg/day to a maximum of 3000 mg once daily.

-I.V.: Initial: 500 mg twice daily; may increase every 2 weeks by 500 mg/dose to a maximum of 1500 mg twice daily. Doses >3000 mg/day have been used in trials; however, there is no evidence of increased benefit.

-Tonic-clonic seizures:

-Oral: Immediate release: Initial: 500 mg twice daily; may increase every 2 weeks by 500 mg/dose to the recommended dose of 1500 mg twice daily. Efficacy of doses other than 3000 mg/day has not been established.

-I.V.: Initial: 500 mg twice daily; may increase every 2 weeks by 500 mg/dose to the recommended dose of 1500 mg twice daily. Efficacy of doses other than 3000 mg/day has not been established.

-Loading dose (unlabeled): Oral: Immediate release: Initial doses of 1500-2000 mg have been well-tolerated (Betts, 2000; Koubeissi, 2008), although the necessity of a loading dose has not been established

-Refractory status epilepticus (unlabeled use): I.V.: 1000-3000 mg administered over 15 minutes (Meierkord, 2010); 2500 mg has been safely administered over 5 minutes in one report (Uges, 2009).

Note: Levetiracetam has not been well studied in comparison to other agents routinely used in this setting.

Renal Impairment:

Adults:

****Immediate release and I.V. formulations:**

- $Cl_{cr} > 80$ mL/minute/ $1.73 m^2$: 500-1500 mg every 12 hours
- $Cl_{cr} 50-80$ mL/minute/ $1.73 m^2$: 500-1000 mg every 12 hours
- $Cl_{cr} 30-50$ mL/minute/ $1.73 m^2$: 250-750 mg every 12 hours
- $Cl_{cr} < 30$ mL/minute/ $1.73 m^2$: 250-500 mg every 12 hours

-End-stage renal disease (ESRD) requiring hemodialysis: 500-1000 mg every 24 hours; supplemental dose of 250-500 mg is recommended posthemodialysis

-Peritoneal dialysis (PD): 500-1000 mg every 24 hours (Aronoff, 2007)

-Continuous renal replacement therapy (CRRT): 250-750 mg every 12 hours (Aronoff, 2007)

****Extended release tablets:**

- $Cl_{cr} > 80$ mL/minute/ 1.73 m^2 : 1000-3000 mg every 24 hours
- $Cl_{cr} 50-80$ mL/minute/ 1.73 m^2 : 1000-2000 mg every 24 hours
- $Cl_{cr} 30-50$ mL/minute/ 1.73 m^2 : 500-1500 mg every 24 hours
- $Cl_{cr} < 30$ mL/minute/ 1.73 m^2 : 500-1000 mg every 24 hours

-End-stage renal disease (ESRD) requiring hemodialysis: Use of immediate release formulation is recommended

Hepatic Impairment:

U.S. labeling: No dosage adjustment necessary

Canadian labeling:

-Mild-to-moderate impairment: No dosage adjustment necessary

-Severe impairment: Reduce maintenance dose by 50% in patients who **also** have $Cl_{cr} < 60$ mL/minute/ 1.73 m^2

Common side effect:

Central nervous system: Behavioral symptoms (agitation, aggression, anger, anxiety, apathy, depersonalization, depression, emotional lability, hostility, hyperkinesias, irritability, nervousness, neurosis and personality disorder: adults 5% to 13%; children 5% to 38%), somnolence (8% to 23%), headache (14%), hostility (2% to 12%)

Gastrointestinal: Vomiting (15%), anorexia (3% to 13%)

Neuromuscular & skeletal: Weakness (9% to 15%)

Respiratory: Pharyngitis (6% to 14%), rhinitis (4% to 13%), cough (2% to 11%)

Miscellaneous: Accidental injury (17%), infection (2% to 13%)

Pregnancy Risk Factor: C