Topiramate (toe-peer-i-mate)
Topamax, Trokendi XR

Classification
Therapeutic: anticonvulsants, mood stabilizers

Pregnancy Category D

Indications

Action
Action may be due to: Blockade of sodium channels in neurons, Enhancement of gamma-aminobutyrate (GABA), an inhibitory neurotransmitter, Prevention of activation of excitatory receptors.

Therapeutic Effects:
Decreased incidence of seizures. Decreased incidence/severity of migraine headache.

Pharmacokinetics
Absorption: Well absorbed (80%) after oral administration.
Distribution: Unknown.
Metabolism and Excretion: 70% excreted unchanged in urine.
Half-life: 21 hr; Extended-release—31 hr.

TIME/ACTION PROFILE (blood levels†)
ROUTE ONSET PEAK DURATION
PO unknown 2 hr 12 hr unknown
PO-ER unknown 24 hr unknown
†After single dose

Contraindications/Precautions
Contraindicated in: Hypersensitivity; Recent alcohol use (within 6 hr before and after use of extended-release product); Metabolic acidosis (on metformin) (with extended-release product only); Lactation: Lactation. Use Cautiously in: All patients (may ↑ risk of suicidal thoughts/behaviors); Renal impairment (dose reduction recommended if CrCl < 70 mL/min/1.73 m²); Hepatic impairment; Renal impairment; Patients predisposed to metabolic acidosis; Patients allergic to sulfites; May ↑ risk for oral ulcerations and or (child) in infants exposed during pregnancy; use only of maternal benefits outweigh fetal risks. Pediatric: Children are more prone to oligohydrosis and hyperthermia, safety in children < 2 yr (immediate-release) and < 6 yr (extended-release) not established (↓ Geriatric age related) in renal/hepatic impairment, concurrent disease states and drug therapy.

Adverse Reactions/Side Effects
CNS: ↑ SEIZURES, SUICIDAL THOUGHTS, dizziness, drowsiness, fatigue, impaired concentration/memory, personality changes, pin and/or needle sensation, paresthesia, weakness, weight loss, nervous system numbness/tingling sensation, tremor, weakness.
EENT: abnormal vision, diplopia, nystagmus, acute myopia/secondary angle closure glaucoma.
GI: nausea, abdominal pain, anorexia, constipation, dry mouth, dyspepsia, anorexia nervosa, constipation, dry mouth, esophagitis, hemobilia, PhD, kidney stones.
GU: oliguria, orthostatic hypotension, ↓ urinary output
Derm: oligohydrosis (↑ in children).
F and E: hyperchloremic metabolic acidosis.
Hemat: leukopenia.
Metab: weight loss, hyperthermia (↑ in children).
Neuro: ataxia, paresthesia, tremor.
Misc: fever.

Interactions
Drug-Drug: Alcohol use within 6 hr before or after use of extended-release product may significantly alter topiramate levels; use during this time frame contraindicated. Levels and effects may be ↓ by phenytoin, carbamazepine, or valproic acid. May ↓ levels and effects of phenytoin, amitriptyline, or lithium. May ↑ levels and effects of hormonal contraceptives, risperidone, or valproic acid. ↑ risk of CNS depression with alcohol or other CNS depressants. Carbonic anhydrase inhibitors (e.g. acetazolamide or zonisamide) may ↓ risk of metabolic acidosis and kidney stones. Concurrent use with valproic acid may ↑ risk of hyperammonemia, encephalopathy, and hypothermia.

Route/Dosage
Epilepsy (monotherapy)
PO (Adults and children ≥10 yr): Immediate-release — 25 mg twice daily initially, gradually ↑ at weekly intervals to 200 mg twice daily over a 6–wk period. Extended-release — 50 mg once daily initially, gradually ↑ at weekly intervals to 400 mg once daily over a 6–wk period.

Use Cautiously in: All patients (may ↑ risk of suicidal thoughts/behaviors). Renal impairment (dose reduction recommended if CrCl < 70 mL/min/1.73 m²); Hepatic impairment; Renal impairment; Patients predisposed to metabolic acidosis; Patients allergic to sulfites; May ↑ risk for oral ulcerations and or (child) in infants exposed during pregnancy; use only of maternal benefits outweigh fetal risks. Pediatric: Children are more prone to oligohydrosis and hyperthermia, safety in children < 2 yr (immediate-release) and < 6 yr (extended-release) not established (↓ Geriatric age related) in renal/hepatic impairment, concurrent disease states and drug therapy.
PO (Children 2–10 yr and ≤11 kg): Immediate-release—25 mg once daily in the evening initially, gradually at weekly intervals to 75 mg twice daily over a 5–7-wk period; if needed may continue to titrate dose on a weekly basis up to 125 mg twice daily.

PO (Children 2–10 yr and 11–22 kg): Immediate-release—25 mg once daily in the evening initially, gradually at weekly intervals to 100 mg twice daily over a 5–7-wk period; if needed may continue to titrate dose on a weekly basis up to 150 mg twice daily.

PO (Children 2–10 yr and 23–38 kg): Immediate-release—25 mg once daily in the evening initially, gradually at weekly intervals to 100 mg twice daily over a 5–7-wk period; if needed may continue to titrate dose on a weekly basis up to 175 mg twice daily.

PO (Children 2–10 yr and ≥38 kg): Immediate-release—25 mg once daily in the evening initially, gradually at weekly intervals to 125 mg twice daily over a 5–7-wk period; if needed may continue to titrate dose on a weekly basis up to 200 mg twice daily.

Renal Impairment
PO (Adults): CCr >70 mL/min—dose by 50%.

Migraine prevention
PO (Adults): 25 mg at night initially, by 25 mg/day at weekly intervals up to target dose of 100 mg/day in 2 divided doses.

Renal Impairment
PO (Adults): CCr <70 mL/min—dose by 50%.

NURSING IMPLICATIONS
Assessment
- Monitor closely for notable changes in behavior that could indicate the emergence or worsening of suicidal thoughts or behavior or depression.
- Seizures: Assess location, duration, and characteristics of seizure activity.
- Migraines: Assess pain location, intensity, duration, and associated symptoms (photophobia, phonophobia, nausea, vomiting) during migraine attack. Monitor frequency and intensity of pain on pain scale.
- Bipolar Disorder: Assess mental status (mood, orientation, behavior) and cognitive abilities before and periodically during therapy.
- Lab Test Considerations: Obtain CBC with differential and platelet count before therapy to determine baseline levels and periodically during therapy. Frequently causes anemia. Hepatic function should be monitored periodically throughout therapy. May cause AST and ALT levels.
- Evaluate serum bicarbonate prior to and periodically during therapy. If metabolic acidosis occurs, dosing taper or discontinuation may be necessary.

Potential Nursing Diagnoses
Risk for injury (Indications) (Side Effects)
Disturbed thought processes (Indications)

Implementation
- Implement seizure precautions.
- Do not confuse Topamax (topiramate) with Toprol XL (metoprolol).
CONTINUED

topiramate

- PO: May be administered without regard to meals.
- Do not break/crush tablets because of bitter taste.
- Contents of the sprinkle capsules can be sprinkled on a small amount (teaspoon) of soft food, such as applesauce, custard, ice cream, oatmeal, pudding, or yogurt. To open, hold the capsule upright so that you can read the word “TOP.” Carefully twist off the clear portion of the capsule. It may be best to do this over the small portion of the food onto which you will be pouring the sprinkles. Sprinkle the entire contents of the capsule onto the food. Be sure the patient swallows the entire spoonful of the sprinkle/food mixture immediately without chewing. Follow with fluid immediately to make sure all of the mixture is swallowed. Never store a sprinkle/food mixture for use at another time.
- A 6 mg/mL oral suspension may be compounded by pharmacy for pediatric patients.
- Swallow extended-release capsules (Trokendi XR) whole; do not sprinkle on food, or break, crush, dissolve, or chew.

Patient/Family Teaching

- Instruct patient to take topiramate exactly as directed. Take missed doses as soon as possible but not just before next dose; do not double doses. Notify health care professional if more than 1 dose is missed. Medication should be gradually discontinued to prevent seizures and status epilepticus. Instruct patient to read the Medication Guide before starting and with each Rx refill, changes may occur.
- May cause decreased sweating and increased body temperature. Advise patients, especially parents of pediatric patients, to provide adequate hydration and monitoring, especially during hot weather.
- May cause dizziness, drowsiness, confusion, and difficulty concentrating. Caution patients to avoid driving or other activities requiring alertness until response to medication is known.
- Advise patient to maintain a fluid intake of 2000–3000 mL of fluid/day to prevent the formation of kidney stones.
- Instruct patients to notify health care professional immediately if periorbital pain or blurred vision occurs. Medication should be discontinued if ocular symptoms occur. May lead to permanent loss of vision.
- Advise patient and family to notify health care professional if thoughts about suicide or dying, attempts to commit suicide; new or worse depression; new or worse anxiety; feeling very agitated or restless; panic attacks; trouble sleeping; new or worse irritability; acting aggressive; being angry or violent; acting on dangerous impulses; an extreme increase in activity and talking, other unusual changes in behavior or mood occur.
- Inform patients that topiramate may cause dizziness. If signs and symptoms (increased intracranial pressure, vomiting, changes in mental status) occur, notify health care professional.
- Caution patient to make position changes slowly to minimize orthostatic hypotension.
- Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and consult health care professional before taking any new medications.
- Advise patient to use sunscreen and wear protective clothing to prevent photosensitivity reactions.
- Advise patient to use a nonhormonal form of contraception while taking topiramate; may make hormonal contraceptives less effective. Notify health care professional if pregnancy is planned or suspected or if breast feeding. If pregnancy occurs, encourage patient to enroll in the North American Drug Pregnancy Registry by calling 1-877-376-3872.
- Advise patient to carry identification describing disease and medication regimen at all times.

Evaluation/Desired Outcomes

- Absence or reduction of seizure activity.
- Decrease in incidence and severity of migraine headaches.
- Remission of manic symptoms.

Why was this drug prescribed for your patient?