OXcarbazepine (ox-ka-zaz-pee-en)
Oxtellar XR, Trileptal

**Classification**
Therapeutic: anticonvulsants
Pharmacologic: carbamazepine analogues

**Pregnancy Category:** C

**Indications**
Monotherapy or adjuvant therapy of partial seizures in adults and children ≥4 yr and older with epilepsy (extended-release tablets only indicated for adjuvant therapy).

**Action**
Blocks sodium channels in neural membranes, stabilizing hyperexcitable states, inhibiting repetitive neuronal firing, and decreasing propagation of synaptic impulses.

**Therapeutic Effects:** Decreased incidence of seizures.

**Pharmacokinetics**

- **Absorption:** Rapidly absorbed after oral administration and rapidly converted to the active 10-hydroxymetabolite (MHD).
- **Distribution:** Enters breast milk in significant amounts.
- **Metabolism and Excretion:** Extensively converted to MHD, which is then primarily excreted by the kidneys.
- **Half-life:** Oxcarbazepine—2 hr; MHD—9 hr.

**TIME/ACTION PROFILE (blood levels)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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</thead>
<tbody>
<tr>
<td>PO</td>
<td>rapid</td>
<td>4.5 hr†</td>
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</tbody>
</table>

†Steady-state levels of MHD are reached after 2–3 days during twice-daily dosing

**Contraindications/Precautions**

- **Contraindicated in:** Hypersensitivity; cross-sensitivity with carbamazepine may occur; breastfeeding; breastfeeding.
- **Use Cautiously in:** All patients (may ↑ risk of suicidal thoughts/behaviors). Renal impairment (dose ↓ recommended if CrCl 30 mL/min). Severe hepatic impairment. OB: May be teratogenic; use only if potential benefit justifies potential risk to the fetus. Pedi: Children <4 yr (safety not established).

**Adverse Reactions/Side Effects**

- **CNS:** SUICIDAL THOUGHTS, dizziness/vertigo, drowsiness/fatigue, headache, cognitive symptoms.
- **EENT:** Abnormal vision, diplopia, nystagmus.
- **GI:** Abdominal pain, dyspepsia, nausea, vomiting, thirst.
- **Derm:** Acne, rash, urticaria.
- **Endo:** Hypothyroidism.
- **F and E:** Hyponatremia.
- **Neuro:** Ataxia, gait disturbances, tremor.
- **Misc:** Allergic reactions, hypersensitivity reactions including STEVENS-JOHNSON SYNDROME and MULTIORGAN REACTIONS, lymphadenopathy.

**Interactions**

- **Drug-Drug:** May inhibit the CYP 2C19 enzyme system and would be expected to alter the effects of other drugs that are metabolized by this system. Oxcarbazepine and MHD induce the P450 3A4/5 enzyme systems and would be expected to alter the effects of other drugs that are metabolized by this system. Therapeutic may result in levels and effectiveness of hormonal contraceptives, furosemide, metoprolol, nisoldipine, nimodipine, nifedipine, felodipine, isradipine, nicardipine, and cyclosporine. In addition, oxcarbazepine itself is metabolized by cytochrome P450 system and other drugs that alter the activity of this system. CNS depression may occur with other CNS depressants, including alcohol, antihistamines, antidepressants, sedatives/hypnotics, and opioids. Carbamazepine, phenobarbital, phenytoin, valproic acid, and verapamil may ↓ levels. May ↑ serum levels and effects of phenytoin (dose ↓ of phenytoin may be required).

**Route/Dosage**

- **PO (Adults):**
  - Adjunctive therapy (immediate-release) — 300 mg twice daily, may be ↑ by up to 600 mg/day at weekly intervals up to 1200 mg/day (up to 2400 mg/day may be needed);
  - Adjunctive therapy (extended-release) — 600 mg once daily for 1 wk; may be ↑ by 600 mg/day at weekly intervals up to 1200–2400 mg once daily;
  - Conversion to monotherapy — 300 mg twice daily; may be ↑ by 300 mg/day at weekly intervals, whereas other antiepileptic drugs are tapered over 3–6 wk, dose of oxcarbazepine should be ↑ up to 2400 mg/day over a period of 5–6 wk; initiation of monotherapy—300 mg twice daily; ↑ by 300 mg/day every third day, up to 1200 mg/day.

**Use Cautiously in:** All patients (may ↑ risk of suicidal thoughts/behaviors). Renal impairment (dose ↓ recommended if CrCl 30 mL/min). Severe hepatic impairment. OB: May be teratogenic; use only if potential benefit justifies potential risk to the fetus. Pedi: Children <4 yr (safety not established).
oxcarbazepine

2 mg/day. Maximum maintenance dose should be achieved over 2–4 wk.

PO (Children 2–16 yr): Adjunctive therapy (immediate release)—4–5 mg/kg twice daily (up to 900 mg/day in patients 25–29 kg, 1200 mg/day in patients 29–39 kg, and 1800 mg/day in patients 40 kg (range 25–51 mg/kg/day). In patients > 20 kg, initial dose of 10–20 mg/kg/day may be used but not to exceed 60 mg/kg/day. Conversion to monotherapy (immediate release)—4–8 mg/kg twice daily (up to 600 mg/day), may be by 3–5 mg/kg/day at weekly intervals, whereas other antiepileptic drugs are tapered over 5–6 wk, dose of oxcarbazepine should be 7–8 mg/kg/day in patients > 20 kg, 900–1200 mg/day in patients 25–30 kg, 900–1500 mg/day in patients 31–40 kg, 1200–1500 mg/day in patients 41–50 kg, 1500–2000 mg/day in patients 51–61 kg, and 1900–2500 mg/day in patients > 61 kg. Maximum maintenance dose should be achieved over 2–4 wk.

PO (Children 6–17 yr): Adjunctive therapy (extended-release)—8–10 mg/kg once daily (up to 600 mg/day) for 1 wk; may be by 8–10 mg/kg/day at weekly intervals over 2–3 wk to achieve 900 mg/day in patients 20–29 kg, 1200 mg/day in patients 29.1–39 kg, and 1800 mg/day in patients > 39 kg. In patients > 20 kg, initial dose of 16–20 mg/kg/day may be used but not to exceed 60 mg/kg/day. Conversion to monotherapy (extended-release)—8–10 mg/kg once daily (up to 600 mg/day) for 1 wk, may be by 8–10 mg/kg/day at weekly intervals over 2–3 wk to achieve 900 mg/day in patients 20–29 kg, 1200 mg/day in patients 29.1–39 kg, and 1800 mg/day in patients > 39 kg (range 6–51 mg/kg/day).

Renal Impairment

PO (Adults): CCr 30 mL/min (immediate and extended-release)—Initiate therapy at 300 mg/day and slowly to achieve desired response.

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 frequency, location, duration, and characteristics of seizure activity. Hyponatremia may increase frequency and severity of seizures.

● Monitor patient for ONS changes. May manifest as cognitive symptoms (psychomotor slowing, difficulty with concentration, speech or language problems), somnolence or fatigue, or coordination abnormalities (ataxia, gait disturbances).

● Lab Test Considerations: Monitor K+ levels and serum electrolytes before and periodically during therapy. May cause hypokalemia. Usual serum occurs during the first 3 mo of therapy. May require dose reduction, fluid restoration, or discontinuation of therapy. Sodium levels return to normal within a few days of discontinuation.

Potential Nursing Diagnoses

Risk for injury (Indications) (Side Effects)

Implementation

● Do not confuse oxcarbazepine with carbamazepine.

● Implement seizure precautions as indicated.

● PO: Administer twice daily with or without food.

● Administer extended-release tablets on an empty stomach, at least 2 hrs after meals, prn with food increases risk of adverse effects. Swallow extended-release tablets whole, do not crush, break, or chew.

● Shake oral suspension well and prepare dose immediately after. Withdraw using oral dosing syringe supplied by manufacturer. May be administered in small glass of water just prior to administration or swallowed directly from syringe. Rinse syringe with warm water and allow to dry.

Patient/Family Teaching

● Instruct patient to take oxcarbazepine in equally spaced doses, as directed. Take missed doses as soon as possible but not within 1 hr of next dose; do not double dose.

● Notify health care professional if more than 1 dose is missed. Medication should be gradually discontinued to prevent seizures. Instruct patient to read the Medication Guide before starting and with each Rx refill, changes may occur.

● May cause dizziness, drowsiness, or ONS changes. Advise patient to avoid driving or other activities requiring alertness until response to medication is known. Do not resume driving until physician gives clearance based on control of seizure disorder.

● Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to consult with health care professional before taking other medications. Advise patient not to take alcohol or other CNS depressants concurrently with this medication.

● 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.

● Instruct patient to notify health care professional of medication regimen before treatment or surgery.

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- Advise female patients to use an additional nonhormonal method of contraception during therapy and until next menstrual period. Instruct patient to notify health care professional if pregnancy is planned or suspected.
- Advise patients to carry identification describing disease and medication regimen at all times.

Evaluation/Desired Outcomes

- Absence or reduction of seizure activity.

Why was this drug prescribed for your patient?