**lamoTRIgine** (la-moe-tri-jen)
Lamictal, Lamictal CD, Lamictal ODT, Lamictal XR

**Classification**
Therapeutic: anticonvulsants
Pregnancy Category: C

**Indications**
- Lamotrigine retard (immediate-release, chewable, and orally disintegrating tablets only).
- Conversion to monotherapy in adults with partial seizures receiving carbamazepine, phenytoin, phenobarbital, or primidone as the single antiepileptic drug (immediate-release, extended-release, chewable, and orally disintegrating tablets only).
- Maintenance treatment of bipolar disorder (immediate-release, chewable, and orally disintegrating tablets only).

**Classification**
Therapeutic: anticonvulsants
Pregnancy Category: C

**Indications**
- Lamotrigine retard (immediate-release, chewable, and orally disintegrating tablets only).
- Conversion to monotherapy in adults with partial seizures receiving carbamazepine, phenytoin, phenobarbital, or primidone as the single antiepileptic drug (immediate-release, extended-release, chewable, and orally disintegrating tablets only).
- Maintenance treatment of bipolar disorder (immediate-release, chewable, and orally disintegrating tablets only).

**Action**
Stabilizes neuronal membranes by inhibiting sodium transport.

**Therapeutic Effects:**
Decreased incidence of seizures. Delayed time to recurrence of mood episodes.

**Pharmacokinetics**
- **Absorption:** 98% absorbed following oral administration.
- **Distribution:** Enters breast milk. Highly bound to melanin-containing tissues (eyes, pigmented skin).
- **Metabolism and Excretion:** Mostly metabolized by the liver to inactive metabolites; 10% excreted unchanged by the kidneys.
- **Half-life:**
  - Children taking enzyme-inducing antiepileptic drugs (AEDs): 7–10 hr.
  - Children taking enzyme inducers and valproic acid: 15–27 hr.
  - Children taking valproic acid: 44–94 hr.
  - Adults: 25.4 hr (during chronic therapy of lamotrigine alone).

**Contraindications/Precautions**
- **Contraindicated in:** Hypersensitivity.
- **Use Cautiously in:** All patients (may risk of suicidal thoughts/behaviors); Patients with renal dysfunction, impaired cardiac function, and hepatic dysfunction (lower maintenance doses may be required); Prior history of rash to lamotrigine; OB: Exposure during first trimester may risk of cleft lip/palate; Lactation: Enters breast milk; use cautiously during lactation; Pedi: Immediate-release, chewable, and orally disintegrating tablets not safe for children <2 yr. Extended-release tablets not approved for use in children <13 yr.

**Adverse Reactions/Side Effects**
- **CNS:** Aseptic meningitis, suicidal thoughts, ataxia, dizziness, headache, behavior changes, depression, drowsiness, insomnia, migraine.
- **EENT:** Blurred vision, double vision, rhinitis.
- **GI:** Hepatic failure, nausea, vomiting.
- **GU:** Vaginitis.
- **Derm:** Photosensitivity, rash (higher incidence in children, patients taking valproic acid, high initial doses, or rapid dose increases).
- **MS:** Arthralgia.
- **Misc:** Multorgan hypersensitivity reactions, Stevens-Johnson syndrome.

**Interactions**
- **Drug-Drug:** Concurrent use with carbamazepine may result in levels of lamotrigine and levels of an active metabolite of carbamazepine. Lamotrigine levels are by concurrent use of phenobarbital, phenytoin, or primidone. Concurrent use with valproic acid results in a twofold increase in lamotrigine levels, incidence of rash, and a in valproic acid level (lamotrigine dose should be by at least 50%). Oral contraceptives may result in at least 50%.

**Route/Dosage**

**Epilepsy**

**In Combination with Other Antiepileptic Agents**
PO (Adults and Children <12 yr; Immediate-release, chewable, or orally disintegrating tablets): Autistic taking one antiepileptic drug other than carbamazepine.

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

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>unknown</td>
<td>1.4–4.8 hr</td>
<td>4–10 hr</td>
</tr>
</tbody>
</table>

**Adverse Reactions/Side Effects**
- **CNS:** Aseptic meningitis, suicidal thoughts, ataxia, dizziness, headache, behavior changes, depression, drowsiness, insomnia, migraine.
- **EENT:** Blurred vision, double vision, rhinitis.
- **GI:** Hepatic failure, nausea, vomiting.
- **GU:** Vaginitis.
- **Derm:** Photosensitivity, rash (higher incidence in children, patients taking valproic acid, high initial doses, or rapid dose increases).
- **MS:** Arthralgia.
- **Misc:** Multorgan hypersensitivity reactions, Stevens-Johnson syndrome.
lamotrigine

Conversion to Monotherapy

PO (Adults and Children ≥16 yr; Immediate-release, chewable, or orally disintegrating tablets): Patients taking anti-epileptic drugs other than carbamazepine, phenobarbital, phenytoin, or primidone (and not valproate)—

Initial Dosing

- Patients taking regimen containing valproate—
  - 25 mg daily for first 2 wk; then 50 mg daily for next 2 wk; then 100 mg every 1–2 wk to maintenance dose of 500–900 mg/day (in 2 divided doses); Patients taking regimens containing sulfonamide—25 mg every other day for first 2 wk, then 25 mg daily for next 2 wk; then 50–500 mg/day every 1–2 wk to maintenance dose of 100–400 mg/day (in 2 divided doses); Patients taking carbonic anhydrase inhibitors (acetazolamide, methazolamide, or sulfonamide)—

- 50 mg daily for first 2 wk, then 100 mg daily for next 2 wk; then 200 mg every wk to achieve maintenance dose of 300–500 mg/day; Patients taking regimen containing valproate—
  - 0.3 mg/kg/day in 1–2 divided doses (rounded down to nearest whole tablet) for first 2 wk; then 0.5 mg/kg/day in 1–2 divided doses (rounded down to nearest whole tablet) for next 2 wk; then 0.6 mg/kg/day in 1–2 divided doses (rounded down to nearest whole tablet) for maintenance dose of 0.6–1.2 mg/kg/day (not to exceed 400 mg/day in 2 divided doses); Patients taking regimens containing sulfonamide—0.15 mg/kg/day in 1–2 divided doses (rounded down to nearest whole tablet) for first 2 wk; then 0.3 mg/kg/day in 1–2 divided doses (rounded down to nearest whole tablet) for next 2 wk; then 0.45–0.9 mg/kg/day in 1–2 divided doses (rounded down to nearest whole tablet) for maintenance dose of 0.5–1.5 mg/kg/day (not to exceed 200 mg/day in 1–2 divided doses) (maintenance dose of 1–3 mg/kg/day is receiving sulfonamide)

Conversion to Monotherapy

PO (Adults and Children ≥16 yr; Immediate-release, chewable, or orally disintegrating tablets): Patients taking carbamazepine, phenobarbital, phenytoin, or primidone (and not valproate)—

- Skew achieving a dose of 500 mg/day (as per dosing guidelines above), dosage of other antiepileptics by 20% weekly until a dose of 500 mg/day is achieved. Maintain the valproate dose of 500 mg/day and the lamotrigine dose of 500 mg/day for 1 wk. Then 7 lamotrigine dose to 300 mg/day and 1–5 lamotrigine dose to 250 mg/day, and maintain those doses for 1 wk. Then discontinue valproate and 7 lamotrigine dose by 10 mg/day every wk until maintenance dose of 500 mg/day is achieved.

PO (Adults and Children ≥16 yr; Extended-release tablets): Patients taking carbamazepine, phenobarbital, phenytoin, or primidone (and not valproate)—

- Skew achieving a dose of 500 mg/day (as per dosing guidelines above), dosage of other antiepileptics by 20% weekly until a dose of 500 mg/day is achieved. Maintain the valproate dose of 500 mg/day and the lamotrigine dose of 500 mg/day for 1 wk. Then 7 lamotrigine dose to 300 mg/day and 1–5 lamotrigine dose to 250 mg/day, and maintain those doses for 1 wk. Then discontinue valproate and 7 lamotrigine dose by 10 mg/day every wk until maintenance dose of 500 mg/day is achieved.

PO (Adults and Children ≥16 yr; Extended-release tablets): Patients taking carbamazepine, phenobarbital, phenytoin, or primidone (and not valproate)—

- Skew achieving a dose of 500 mg/day (as per dosing guidelines above), dosage of other antiepileptics by 20% weekly until a dose of 500 mg/day is achieved. Maintain the valproate dose of 500 mg/day and the lamotrigine dose of 500 mg/day for 1 wk. Then 7 lamotrigine dose to 300 mg/day and 1–5 lamotrigine dose to 250 mg/day, and maintain those doses for 1 wk. Then discontinue valproate and 7 lamotrigine dose by 10 mg/day every wk until maintenance dose of 500 mg/day is achieved.

Bipolar Disorder

Escalation Regimen

PO (Adults): Patients not taking carbamazepine, phenobarbital, phenytoin, primidone, rifampin, or valproate—25 mg daily for first 2 wk, then 50 mg daily for 1 wk, then 100 mg every 1–2 wk to achieve maintenance dose of 150 mg/day; Patients taking regimen containing valproate—

- Skew achieving a dose of 150 mg/day (as per dosing guidelines above), dosage of other antiepileptics by 20% weekly until a dose of 150 mg/day is achieved. Maintain the valproate dose to 150 mg/day, and maintain these doses for 1 wk. Then discontinue valproate and 7 lamotrigine dose by 25–50 mg/day with 3–4 weeks until a dose of 0 mg/day is achieved. Maintain the regimen containing valproate.
CONTINUED

lamoTRigine

next 2 wk, then 200 mg daily; for 1 wk, then 200 mg daily. Patients taking valproate—25 mg every other day for first 2 wk, then 25 mg every other day for next 2 wk, then 50 mg daily for 1 wk, then 100 mg daily. Patients taking valproate in combination with lamotrigine—300 mg daily (as divided doses) for 1 wk, then 200 mg daily (as divided doses) for 1 wk, then 500 mg daily (as divided doses) for 1 wk, then 1000 mg daily (as divided doses) for 1 wk, then 2000 mg daily (as divided doses).

Dosage Adjustment Following Discontinuation of Other Psychotropic Medications

PO (Adults): Following discontinuation of valproate (if current dose is ≥ 100 mg/day) — 25 mg every other day for first 2 wk, then 25 mg daily for next 2 wk, then 50 mg daily for 1 wk, then 100 mg daily; Patients taking carbamazepine, phenobarbital, phenytoin, primidone, or rifampin (not valproate) — 50 mg daily for first 2 wk, then 100 mg/day (as divided doses) for next 2 wk, then 200 mg/day (as divided doses) for 1 wk, then 300 mg/day (as divided doses) for 1 wk, then up to 400 mg/day (as divided doses).

NURSING IMPLICATIONS

Assessment

- Monitor closely for notable changes in behavior that could indicate the emergence or worsening of suicidal thoughts or behavior or depression.
- Assess patient for skin rash frequently during therapy. Discontinue lamotrigine at first sign of rash; may be life-threatening. Stevens-Johnson syndrome or toxic epidermal necrolysis may develop. Rash usually occurs during the initial 2–8 wk of therapy and is more frequent in patients taking multiple antiepileptic agents, especially valproic acid, and much more frequent in patients < 16 yr.
- Monitor for signs and symptoms of multiorgan hypersensitivity reactions (rash, fever, lymphadenopathy). May be associated with other organ involvement (hepatitis, hepatic failure, blood dyscrasias, acute multiorgan failure). If cause cannot be determined, discontinue lamotrigine immediately.

- Neutropenia: Assess location, duration, and characteristics of adverse reaction.

- NURSE: Assess depression, suicidal ideation, and medication adherence.

- Genetic Implication: CAPI TALS indicate life-threatening, underline indicate most frequent. Strike through indicate discontinued.

Potential Nursing Diagnoses

- Risk for injury (Side Effects)
- Risk for impaired skin integrity (Adverse Reactions)
- Risk for altered thought processes (Adverse Reactions)
- Risk for injury (Side Effects)

Implementation

- Do not confuse lamotrigine (Lamictal) with lamivudine (Epivir) or levothyroxine.
- When converting from immediate-release to XR form, initial dose of XR should match the total daily dose of immediate-release lamotrigine; monitor closely and adjust as needed.
- PO: May be administered without regard to meals. Swallow XR tablets whole; do not break, crush, or chew.
- Lamotrigine should be discontinued gradually over at least 2 wk, unless safety requires a more rapid withdrawal. Abrupt discontinuation may cause increase in seizure frequency.

- Oral Disintegrating Tablets: Place on the tongue and move around the mouth. Tablet will rapidly disintegrate, can be swallowed with or without water, and can be taken with or without food.
- Chewable/Dispersible Tablets: May be swallowed whole, chewed, or dispersed in water or dispersed in fruit juice. If chewed, follow with water or fruit juice to aid in swallowing. Only use whole tablets, do not attempt to administer partial quantities of dispersible tablets.

Patient/Family Teaching

- Instruct patient to take medication exactly as directed. Take missed doses as soon as possible unless almost time for next dose. Do not double doses. Do not discontinue abruptly; may cause increase in frequency of seizures. Instruct patient to read the Medication Guide before starting and with each Rx refill, changes may occur.
- Advise patient to notify health care professional immediately if skin rash, fever, or swollen lymph glands occur or if frequency of seizures increases.
May cause dizziness, drowsiness, and blurred vision. Caution patient to avoid driving or activities requiring alertness until response to medication is known. Do not resume driving until physician gives clearance based on control of seizure disorder.

Caution patient to wear sunscreen and protective clothing to prevent photosensitivity reactions.

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 or if symptoms of aseptic meningitis (headache, fever, nausea, vomiting, and mental rigidity, rash, photophobia, myalgia, chills, altered consciousness, somnolence) occur.

Advise patient to notify health care professional if pregnancy is planned or suspected or if breast feeding.

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

Advise patient to carry identification at all times describing disease process and medication regimen.

Evaluation/Desired Outcomes

- Decrease in the frequency or cessation of seizures.
- Decreased incidence of mood swings in bipolar disorders.

Why was this drug prescribed for your patient?