cinacalcet (sin-a-kal-set)

**Summary**

**Classification:** Therapeutic: hypocalcemics  
Pharmacologic: calcimimetic agents

**Pregnancy Category:** C

**Indications**
Secondary hyperparathyroidism in patients with chronic kidney disease (CKD) on dialysis. Hypercalcemia caused by parathyroid carcinoma. Severe hypercalcemia in patients with primary hyperparathyroidism in patients who are unable to undergo parathyroidectomy.

**Action**
 Increases sensitivity of calcium-sensing receptors located on the surface of chief cells of parathyroid gland to levels of extracellular calcium. This decreases parathyroid hormone production with resultant decrease in serum calcium.

**Therapeutic Effects:**  
Decreased bone turnover and fibrosis. Decreased serum calcium.

**Pharmacokinetics**

**Absorption:** Well absorbed following oral administration, absorption is enhanced by food and further enhanced by a high fat meal.

**Distribution:** Unknown.

**Protein Binding:** 93–97%.

**Metabolism and Excretion:** Highly metabolized by CYP3A4, CYP2D6, and CYP1A2 enzyme systems; 80% excreted in urine as metabolites, 15% in feces.

**Half-life:** 30–40 hr.

**TIME/ACTION PROFILE (effect on PTH levels)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tbody>
<tr>
<td>PO</td>
<td>rapid</td>
<td>2–6 hr</td>
<td>6–12 hr</td>
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**Contraindications/Precautions**

**Contraindicated in:** Hypersensitivity; Hypocalcemia; Lactation: Discontinue drug or bottle-feed.

**Use Cautiously in:** History of seizure disorder (>1 risk of seizures with hypocalcemia); Chronic kidney disease patients who are not being dialyzed (>1 risk of hypercalcemia); Serum parathyroid hormone (PTH) level >150 pg/mL; (dose >1 or discontinuation may be warranted); Moderate to severe hepatic impairment; OB: Use only if benefits to mother/value to fetus, PO/PO: Safety not established.

**Adverse Reactions/Side Effects**

**CNS:** Seizures.

**GI:** Nausea, vomiting.

**F and E:** Hypocalcemia.  
**Metab:** Adynamic bone disease.

**Interactions**

**Drug-Drug:** Inhibits CYP2D6 and may lower levels of flecainide, vinblastine, diltiazem, metoprolol, carvedilol, and most tricyclic antidepressants; dose adjustments may be necessary. Blood levels are ↑ in strong CYP3A4 inhibitors including ketoconazole, itraconazole, and erythromycin; monitoring and dose adjustments may be necessary.

**Route/Dosage**

**PO (Adults):**  
Secondary hyperparathyroidism in CKD patients on dialysis—30 mg once daily; may dose every 2–4 wk (dose range 30–180 mg once daily) based on iPTH levels; Parathyroid carcinoma or primary hyperparathyroidism—30 mg twice daily; may titrate every 2–4 wk up to 90 mg 3–4 times daily based on serum calcium levels.

**NURSING IMPLICATIONS**

**Assessment**

- Monitor for signs and symptoms of hypocalcemia (paresthesias, myalgias, crampling, tetany, convulsions) during therapy. If calcium levels decrease to below normal, serum calcium may be increased by adjusting dose (see Lab Test Considerations) and providing supplemental serum calcium, initiating or increasing dose of calcium-based phosphate binder or vitamin D.

- Monitor serum calcium and phosphorus levels within 1 wk, after initiation of therapy or dose adjustment and monthly for patients with hyperparathyroidism or every 3 mo for patients with parathyroid carcinoma once maintenance dose has been established, especially in patients with a history of seizures disorders. Therapy should be initiated for patients with serum calcium less than the lower limit of normal (<8.4 mg/dL).

- If serum calcium >10.4 mg/dL, but remains above 9.5 mg/dL, or if symptoms of hypercalcemia occur, use calcium-containing phosphate binders and or vitamin D should be discontinued.
Cinacalcet may be used alone or in combination with vitamin D and/or phosphate binders.

PO: Administer with food or shortly after a meal. Take tablets whole, do not crush, break or chew.

Potential Nursing Diagnoses

Deficient knowledge, related to medication regimen (Patient/Family Teaching)

Implementation

- Cinacalcet may be used alone or in combination with vitamin D and/or phosphate binders.
- PN: Administer with food or shortly after a meal. Take tablets whole, do not crush, break or chew.

Patient/Family Teaching

- Instruct patient to take cinacalcet as directed.
- Advise patient to report signs and symptoms of hypocalcemia to health care professional promptly.
- Emphasize the importance of follow-up lab tests to monitor safety and efficacy.

Evaluation/Desired Outcomes

- Decreased serum calcium levels.

Why was this drug prescribed for your patient?