

Lucent[®]

Calcitriol BP

Presentation:

Lucent capsule : Each soft gelatin capsule contains 0.25 mcg Calcitriol BP.

PHARMACOLOGICAL INFORMATION

Pharmacological action

Lucent (Calcitriol) is a synthetic analog of vitamin D, a biologically active form of vitamin D3. This regulates the absorption of calcium from the gastrointestinal tract and its utilization in the body.

Mechanism of action

Lucent (Calcitriol) acts as a typical steroid hormone. The main target organs for calcitriol which are recognized at present as being of clinical importance are the small intestine, muscle and bone, where calcitriol stimulates calcium and phosphate transport. The key role of calcitriol in the regulation of calcium homeostasis, which includes stimulating effects on osteoblastic activity in the skeleton, provides a sound pharmacological basis for its therapeutic effects in osteoporosis.

PHARMACOKINETIC PROPERTIES

Absorption:

Lucent (Calcitriol) is rapidly absorbed from the intestine. Peak serum concentrations following a single oral dose of 0.25 to 1.0 µg Calcitriol were found within three to six hours. Following multiple administration, serum Calcitriol levels reached a steady state within 7 days, with a relationship to the dose of Calcitriol administered.

Distribution

Lucent (Calcitriol) is approximately 99.9% bound in blood. Calcitriol and other vitamin D metabolites are transported in blood, by an alphaglobulin vitamin D binding protein.

Metabolism

Two main pathways for the metabolism of **Lucent** (Calcitriol) have been identified; side-chain oxidative cleavage with the formation of calcitriol acid and 24-hydroxylation. These account for 35-40% of calcitriol metabolism.

Excretion

Bile is the only major excretory route for **Lucent** (Calcitriol), 20-25% of the radioactivity appears in bile over the first 24 hour. The elimination half-life of calcitriol in serum is 9-10 hours.

CLINICAL INFORMATION

Indications

- Postmenopausal osteoporosis
- Prevention of corticosteroid induced osteoporosis
- Renal osteodystrophy in patients with chronic renal failure, particularly those undergoing haemodialysis
- Secondary hyperparathyroidism in patients with moderate to severe chronic renal failure (pre-dialysis)
- Postsurgical hypoparathyroidism
- Idiopathic hypoparathyroidism
- Pseudohypoparathyroidism
- Vitamin D dependency rickets
- Hypophosphataemic vitamin D resistant rickets

Dosage and Administration

Postmenopausal osteoporosis:

The recommended dose of Lucent is 0.25 µg twice daily. If a satisfactory response is not obtained with this dose, it may be increased at monthly intervals to a maximum of 0.5 µg twice daily. This increased dose should very rarely be necessary. Serum calcium and creatinine levels should be obtained at 2-4 weeks after initiating treatment then at 3 and 6 months and every 6 months thereafter.

Renal osteodystrophy (dialysis patients):

The initial daily dose is 0.25 µg. In patients with normal or only slightly reduced serum calcium levels, doses of 0.25 µg every other day are sufficient. If no satisfactory response in the biochemical parameters and clinical manifestations of the disease is observed within two to four weeks, the dosage may be increased by 0.25 µg per day at two to four week intervals. During this period, serum calcium levels should be determined at least twice weekly. Most patients respond to between 0.5 µg and 1.0 µg daily. A maximum total cumulative dosage of 12 µg per week should not be exceeded.

Secondary hyperparathyroidism (pre-dialysis patients):

The recommended initial dosage of Lucent for the treatment of secondary hyperparathyroidism and resultant metabolic bone disease in patients with moderate to severe renal failure i.e. creatinine clearance 15 to 55 ml/min, is 0.25 µg/day in adults and in paediatric patients 3 years of age or older. This dosage may be increased if necessary to 0.5 µg/day.

Hypoparathyroidism and rickets:

The recommended initial dose of Lucent is 0.25 µg per day given in the morning. If a satisfactory response in the biochemical parameters and clinical manifestations of the disease are not observed, the dose may be increased at two to four week intervals. During this period, serum calcium levels should be determined at least twice weekly. If hypercalcaemia is noted, Lucent should be immediately discontinued until

normocalcaemia ensues. If the physician decides to prescribe Calcitriol to a pregnant woman with hypoparathyroidism, an increased dose may be required during the latter half of gestation, with dose reduction postpartum or during lactation.

Corticosteroid induced Osteoporosis (prevention):

The recommended dosage range for the prevention of corticosteroid induced osteoporosis is 0.5-0.75 µg per day. Serum calcium and creatinine levels should be obtained at 2-4 weeks after initiating treatment then at 3 and 6 months and every 6 months thereafter. If hypercalcaemia is noted, the medicine should be immediately discontinued until normocalcaemia ensues.

Elderly Patients

No specific dosage modifications are required in elderly patients. The general recommendations for monitoring serum calcium and creatinine should be observed.

Infants and Children

As for adults, the optimal daily dosage for children must be determined on the basis of serum calcium level. During the first two years of life, a daily dosage of 0.01 - 0.1 µg/kg body weight is recommended as a guideline.

Intermittent (pulse) Therapy:

Oral intermittent (pulse) therapy with **Lucent** two or three times weekly has been shown to be effective even in the patients refractory to continuous therapy.

Contraindications

Lucent (Calcitriol) is contraindicated in all diseases associated with hypercalcaemia. Use of Calcitriol in patients with a known hypersensitivity to Calcitriol or any of the constituent excipients contraindicated. Calcitriol is contraindicated if there is evidence of vitamin D toxicity.

Warnings and Precautions

There is a close correlation between treatment with **Lucent** (Calcitriol) and the development of hypercalcaemia. Uncontrolled intake of calcium preparations may trigger hypercalcaemia. **Lucent** increases inorganic phosphate levels in serum. While this is desirable in patients with hypophosphataemia, caution is called for in patients with renal failure because of the danger of ectopic calcification. Patients with vitamin D resistant rickets (familial hypophosphataemia) who are being treated with **Lucent** must continue their oral phosphate therapy. The regular laboratory investigations that are required include serum determinations of calcium, phosphorus, magnesium and alkaline phosphatase and of the calcium and phosphate content in 24-hour urine. No other vitamin D preparation should be prescribed during treatment with **Lucent**, thereby ensuring that the development of hypervitaminosis D is avoided. Patients with normal renal function taking **Lucent** should avoid dehydration. Adequate fluid intake should be maintained.

Effects on ability to drive and use machines:

On the basis of the pharmacodynamic profile of reported adverse events, this product is presumed to be safe or unlikely to affect such activities.

Pregnancy and Nursing Mothers:

There is no evidence to suggest that vitamin D is teratogenic in humans even at very high doses. **Lucent** should be used in pregnancy only if the benefits outweigh the potential risk to the foetus. It should be assumed that exogenous **Lucent** passes into the breast milk.

Adverse Effects

Occasional acute symptoms include anorexia, headache, nausea, vomiting abdominal pain or stomach ache and constipation. Chronic effects may include dystrophy, sensory disturbances, fever with thirst, thirst/polydipsia, polyuria, dehydration, apathy, arrested growth and urinary tract infections. In patients with normal renal function, chronic hypercalcaemia may be associated with an increase in serum creatinine.

Drug Interactions

Concomitant treatment with a thiazide diuretic increases the risk of hypercalcaemia. Magnesium-containing medicines (eg. antacids) may cause hypermagnesaemia and therefore should not be taken during therapy with **Lucent** in patients on chronic renal dialysis. Since **Lucent** also has an effect on phosphate transport in the intestine, kidneys and bones, the dosage of phosphate binding agents must be adjusted in accordance with the serum phosphate concentration (normal levels: 2-5 mg per 100 ml, or 0.65-1.62 mmol/l). Patients with vitamin D resistant rickets (familial hypophosphataemia) should continue their oral phosphate therapy. However, the possible stimulation of intestinal phosphate absorption by **Lucent** since this effect may modify the requirement for phosphate supplements. Administration of enzyme inducers such as phenytoin or phenobarbital may lead to increased metabolism and hence reduced serum concentrations of **Lucent**. Cholestyramine can reduce intestinal absorption of fat-soluble vitamins and therefore may impair intestinal absorption of **Lucent**.


Pharmaceutical Precaution

Store in a cool and dry place, away from light. Keep all medicines out of the reach of children.

Commercial Pack

Box containing 3 x 10 soft capsules in ALU-PVC blister strips.

Manufactured by :

 **RENATA LIMITED**
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Mirpur, Dhaka, Bangladesh