

Bio-Logical Vitamin D3 Solution 1000 IU per 0.2 mL

Concentrated Vitamin D3 Oral Liquid – 50mL bottle

Information for doctors

Name of Medicine

Cholecalciferol

C₂₇H₄₄O

CAS Registry Number: 67-97-0

Description

Each adult dose (0.2mL) of Bio-Logical Vitamin D3 Solution contains 1,000 IU of Vitamin D3 as cholecalciferol in a specially prepared water soluble emulsified form for enhanced absorption. It is free from added sugars, yeast, starches, gluten, wheat, corn, other cereals, dairy products, flavours and colouring. Contains Sodium Benzoate.

Note: A full 50mL bottle of Bio-Logical Vitamin D3 Solution contains 250,000 IU of Vitamin D.

Bio-Logical Vitamin D3 Solution is packaged in a carton containing 1 x 50mL amber glass bottle. It is a clear straw coloured viscous liquid and a dropper cap graduated to 1.0mL with 0.2mL graduations is included in the carton. The bottle is sealed with a tamper evident cap.

Indications

For vitamin D3 supplementation. Vitamin D helps calcium absorption and a diet deficient in calcium can lead to osteoporosis in later life. Vitamin D is essential for the proper regulation of calcium and phosphorous and normal bone mineralisation. Vitamin Supplements should not replace a balanced diet. Solutions are a convenient dose form, especially for those who have difficulty in swallowing tablets and capsules.

Contraindications

Medical considerations / Contraindications

The medical considerations / contraindications included have been selected on the basis of their potential clinical significance (reasons given in parentheses where appropriate) (« = major clinical significance).

Except under special circumstances, this medication should not be used when the following medical problems exist:

- » Hypercalcemia
- » Hypervitaminosis D
- » Renal osteodystrophy with hyperphosphatemia (risk of metastatic calcification; however, vitamin D therapy can begin once serum phosphate levels have stabilized)

Precautions

Risk-benefit should be considered when the following medical problems exist:

- » Arteriosclerosis or
- » Cardiac function impairment (conditions may be exacerbated due to possibility of hypercalcemia and elevated serum cholesterol concentrations)
- » Hyperphosphatemia (risk of metastatic calcification; dietary phosphate restriction or administration of intestinal phosphate binders is recommended to produce normal serum phosphorus concentrations)
- » Hypersensitivity to effects of vitamin D (may be involved in causing idiopathic hypercalcemia in infants)
- » Renal function impairment (toxicity may occur in patients receiving vitamin D for nonrenal problems, although toxicity is also possible during treatment of renal osteodystrophy because of increased requirements and decreased renal function)

Sarcoidosis, and possibly other granulomatous diseases (increased sensitivity to effects of vitamin D.

Particular caution is advised in patients with a history of kidney stones, or a family history of kidney stones.

Particular caution is advised in patients with a history of raised urinary oxalates.

Care should be taken to ensure the vitamin B6 status of the patient is replete before taking Bio-Logical Vitamin D3 Solution.

Patients should avoid large dietary or other supplementary sources of vitamin D while taking Bio-Logical Vitamin D3 Solution.

Patient monitoring:

Because of the potential toxicity of vitamin D, it is advisable to monitor plasma calcium levels regularly.

Use in pregnancy and during lactation:

There are not sufficient data on the use of very large doses of vitamin D in pregnancy. In principle, the preparation should not be given to pregnant women, and women receiving this preparation should abstain from breastfeeding.

Interactions with other medicines:

The following drug interactions and/or related problems have been selected on the basis of their potential clinical significance (possible mechanism in parentheses where appropriate) - not necessarily inclusive (« = major clinical significance):

Note: Combinations containing any of the following, depending on the amount present, may also interact with vitamin D.

Antacids, aluminum-containing (long-term use of aluminum-containing antacids as phosphate binders in hyperphosphatemia in conjunction with vitamin D has been found to increase blood levels for aluminum and may lead to aluminum bone toxicity, especially in patients with chronic renal failure)

- » Antacids, magnesium-containing (concurrent use with vitamin D may result in hypermagnesemia, especially in patients with chronic renal failure)

Anticonvulsants, hydantoin or Barbiturates or

Primidone (may reduce effect of vitamin D by accelerating metabolism by hepatic microsomal enzyme induction; patients on long-term anticonvulsant therapy may require vitamin D supplementation to prevent osteomalacia)

Calcitonin or

Etidronate or

Gallium nitrate or

Pamidronate or

Plicamycin (concurrent use with vitamin D may antagonize these medications in the treatment of hypercalcemia)

- » Calcium-containing preparations, in high doses or
- » Diuretics, thiazide (concurrent use with vitamin D may increase the risk of hypercalcemia; however, it may be therapeutically advantageous in elderly and high-risk groups when it is necessary to prescribe vitamin D or its derivatives together with calcium; careful monitoring of serum calcium concentrations is essential during long-term therapy)

Cholestyramine or

Colestipol or

Mineral oil (concurrent use may impair intestinal absorption of vitamin D since these medications have been reported to reduce intestinal absorption of fat-soluble vitamins; requirements for vitamin D may be increased in patients receiving these medications)

Corticosteroids (vitamin D supplementation may be recommended by some clinicians for prolonged corticosteroids use, because corticosteroids may interfere with vitamin D action)

Digitalis glycosides (caution is recommended in patients being treated with these medications since the hypercalcemia that may be caused by vitamin D may potentiate the effects of digitalis glycosides, resulting in cardiac arrhythmias)

Hepatic enzyme inhibitors (May affect 25-hydroxylation and necessitate dosage adjustments of doxercalciferol)

Phosphorus-containing preparations, in high doses (concurrent use with vitamin D may increase the potential for hyperphosphatemia, because of vitamin D enhancement of phosphate absorption)

» Vitamin D and analogs, other (concurrent use of one analog with another, especially calcifediol, is not recommended because of additive effects and increased potential for toxicity).

Adverse effects

Note: Ingestion of excessive doses of vitamin D over prolonged periods (20,000 to 60,000 units a day or more for several weeks or months in adults and 2,000 to 4,000 units a day for several months in children) can result in severe toxicity. Acute excessive doses of vitamin D can also result in severe toxicity, but there are insufficient data to determine at what dose.

Chronic vitamin D-induced hypercalcemia may result in generalized vascular calcification, nephrocalcinosis, and other soft tissue calcification that may lead to hypertension and renal failure. These effects are more likely to occur when the hypercalcemia is accompanied by hyperphosphatemia.

Growth may be arrested in children, especially after prolonged administration of 1800 Units of ergocalciferol per day.

Death may occur as a result of renal or cardiovascular failure caused by vitamin D toxicity.

Dosage necessary to cause toxicity varies with individual sensitivity, but in individuals without malabsorption

problems, 10,000 Units a day for more than several weeks or months is the maximum dose.

Signs of potential side effects:

bone pain, constipation, diarrhea, drowsiness, dry mouth, headache (continuing), increased thirst, increase in frequency of urination (especially at night) or in the amount of urine, loss of appetite, metallic taste, muscle pain, nausea or vomiting, unusual tiredness or weakness, cloudy urine, conjunctivitis (calcific), decreased libido, ectopic calcification, high fever, high blood pressure, increased sensitivity of eyes to light or irritation of eyes, irregular heartbeat, itching of skin, lethargy, loss of appetite, pancreatitis, psychosis (overt), rhinorrhea, and weight loss.

The main symptoms result from hypercalcemia. Proteinuria, urinary casts, azotemia, and metastatic calcifications (particularly in the kidneys) can develop.

Dosage and Administration

The recommended dose for adults is 1,000 IU (**0.2 mL**) per day.

A note on high doses: Doses of 100 000 to 300 000IU have been administered orally or intramuscularly 6-monthly or once-yearly quite safely without causing hypercalcaemia or renal impairmentⁱ.

A single annual intramuscular injection of 600 000IU cholecalciferol was administered to 50 vitamin D-deficient participants. The therapy was effective, with normalization of serum 25OHD levels and maintenance of a level well above 50nmol/L at 12 months. This result was achieved with very little change in serum calcium levels and no deterioration in renal function, although there was a progressive increase in urine calcium excretion indicesⁱ.

Overdosage

Because of the potential toxicity of vitamin D, it is advisable to monitor plasma calcium levels regularly.

The treatment of acute accidental overdosage of Bio-Logical Vitamin D3 Solution should consist of general supportive measures. Serial serum electrolyte determinations (especially calcium), rate of urinary calcium excretion and assessment of electrocardiographic abnormalities due to hypercalcemia should be obtained. Such monitoring is critical in patients receiving digitalis.

After stopping vitamin D intake, hydration with IV normal saline and

corticosteroids or bisphosphonates (e.g. alendronate, which inhibit bone resorption) may be used to reduce blood Ca levels.

Discontinuation of supplemental calcium and low calcium diet are also indicated in accidental overdosage.

Presentation and storage conditions

Store below 30°C (room temperature). Keep out of reach of children.

Expiry date is 12 months from the date of manufacture.

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Ingredients (each 0.2 mL)

Active ingredients:

- Cholecalciferol.....25 mcg (1000 IU)

Excipients required to be disclosed:

- Sodium Benzoate

Supplier

Bio-Logical Vitamin D3 Solution Oral Liquid is Listed with the Therapeutic Goods Administration (TGA). AUST L 159452

Manufactured by

Orthomolecular Medisearch Laboratories Pty Ltd trading as

Biological Therapies.

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ⁱ Diamond TH, Ho KW, Rohl PG, Meerkin M. Annual intramuscular injection of a megadose of cholecalciferol for treatment of vitamin D deficiency: efficacy and safety data. Med J Aust. 2005 Jul 4;183(1):10-2. PMID: 15992330