

The following information was generated from the Hazardous Substances Data Bank (HSDB), a database of the National Library of Medicine's TOXNET system (<http://toxnet.nlm.nih.gov>) on March 25, 2010.

Query: The chemical name vitamin d3 was identified.

The following terms were added from ChemIDplus:

dehydrocholesterin

CAS Registry Number: 434-16-2

The chemical name vitamin d3 was identified.

The following terms were added from ChemIDplus:

colecalfiferol

vigorsan

trivitan

ricketon

deparal

delsterol

CAS Registry Number: 67-97-0

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NAME: CHOLECALCIFEROL

RN: 67-97-0

HUMAN HEALTH EFFECTS:

HUMAN TOXICITY EXCERPTS:

/SIGNS AND SYMPTOMS/ Vitamin D toxicity in infancy and childhood is characterized by supraaortic stenosis, mental retardation, a characteristic facies, renal tubular acidosis, nephrocalcinosis infantum, and generalized infantile arteriosclerosis. /Vitamin-D/ [Thienes, C., and T.J. Haley. Clinical Toxicology. 5th ed. Philadelphia: Lea and Febiger, 1972., p. 213] \*\*PEER REVIEWED\*\*

/SIGNS AND SYMPTOMS/ Vitamin D toxicity may be manifested in the fetus. There is a relationship between excess maternal vitamin D intake or extreme sensitivity and nonfamilial congenital supraaortic stenosis. In infants, this anomaly is often associated with other stigmata of hypercalcemia. Maternal hypercalcemia also may result in suppression of parathyroid function in the newborn, with resultant hypocalcemia, tetany, and seizures. /Vitamin D/ [Hardman, J.G., L.E. Limbird, P.B., A.G. Gilman. Goodman and Gilman's The Pharmacological Basis of Therapeutics. 10th ed. New York, NY: McGraw-Hill, 2001., p. 1729] \*\*PEER REVIEWED\*\*

/SIGNS AND SYMPTOMS/ Patients should be informed of the dangers and symptoms of vitamin D intoxication. Early symptoms of hypercalcemia may include weakness, fatigue, somnolence, headache, anorexia, dry mouth, metallic taste, nausea, vomiting, abdominal cramps, constipation, diarrhea, vertigo, tinnitus, ataxia, exanthema, hypotonia (in infants), muscle pain, bone pain, and irritability. Later and sometimes more serious consequences of hypercalcemia may include rhinorrhea, pruritus, decreased libido, nephrocalcinosis, impairment of renal function (resulting in polyuria, nocturia, polydipsia, hyposthenuria, and proteinuria), osteoporosis in adults, decreased growth in children, weight loss, anemia, calcific conjunctivitis, photophobia, metastatic calcification, pancreatitis, generalized vascular calcification, and seizures. Rarely, patients may develop hypertension or overt psychosis. Urinary calcium, phosphate, and albumin; BUN; and serum cholesterol, AST (SGOT), and ALT

(SGPT) concentrations may increase. Serum alkaline phosphatase concentrations may decrease. Serum electrolyte imbalances along with mild acidosis may result in cardiac arrhythmias. /Vitamin D/ [McEvoy, G.K. (ed.). American Hospital Formulary Service- Drug Information 2005. Bethesda, MD: American Society of Health-System Pharmacists, Inc. 2005 (Plus Supplements)., p. 3541] \*\*PEER REVIEWED\*\*

#### DRUG WARNINGS:

Studies have shown that the elderly may have an increased need for vitamin D due to a possible decrease in the capacity of the skin to produce previtamin D3 or a decrease in exposure to the sun or impaired renal function or impaired vitamin D absorption. [Thomson/Micromedex. Drug Information for the Health Care Professional. Volume 1, Greenwood Village, CO. 2006., p. 2967] \*\*PEER REVIEWED\*\*

Doses of vitamin D analogs that do not exceed the physiologic requirement are usually nontoxic. However, some infants and patients with sarcoidosis or hypoparathyroidism may have increased sensitivity to vitamin D analogs. /Vitamin D analogs/ [McEvoy, G.K. (ed.). American Hospital Formulary Service- Drug Information 2005. Bethesda, MD: American Society of Health-System Pharmacists, Inc. 2005 (Plus Supplements)., p. 3541] \*\*PEER REVIEWED\*\*

Acute or chronic administration of excessive doses of vitamin D analogs or enhanced responsiveness to physiologic amounts of ergocalciferol or cholecalciferol may lead to hypervitaminosis D manifested by hypercalcemia. /Vitamin D analogs/ [McEvoy, G.K. (ed.). American Hospital Formulary Service- Drug Information 2005. Bethesda, MD: American Society of Health-System Pharmacists, Inc. 2005 (Plus Supplements)., p. 3541] \*\*PEER REVIEWED\*\*

Decreased renal function without hypercalcemia has also been reported in patients with hypoparathyroidism after long-term vitamin D analog therapy. Before therapy with vitamin D analogs is initiated, serum phosphate concentrations must be controlled. To avoid ectopic calcification, the serum calcium (in mg/dL) times phosphorus (in mg/dL) should not be allowed to exceed 70. Because administration of vitamin D analogs may increase phosphate absorption, patients with renal failure may require adjustment in the dosage of aluminum-containing antacids used to decrease phosphate absorption. /Vitamin D analogs/ [McEvoy, G.K. (ed.). American Hospital Formulary Service- Drug Information 2005. Bethesda, MD: American Society of Health-System Pharmacists, Inc. 2005 (Plus Supplements)., p. 3541] \*\*PEER REVIEWED\*\*

Vitamin D is contraindicated in those with hypercalcemia and those with evidence vitamin D toxicity. [Medical Economics Co; Physicians Desk Reference for Nutritional Supplements 1st ed p. 503 (2001)] \*\*PEER REVIEWED\*\*

Vitamin D analogues should not be administered concurrently ... [McEvoy, G.K. (ed.). American Hospital Formulary Service- Drug Information 2005. Bethesda, MD: American Society of Health-System Pharmacists, Inc. 2005 (Plus Supplements)., p. 3541] \*\*PEER REVIEWED\*\*

A characteristic physiognomy, possibly with aortic valvular stenosis, retinopathy, and mental and/or physical retardation, has occurred following prolonged hypercalcemia in infants and in neonates of mothers with hypercalcemia during pregnancy. Hypercalcemia during pregnancy may also lead to suppression of parathyroid hormone concentrations in the neonate resulting in hypocalcemia, tetany, and seizures. Safe use of calcifediol, calcitriol, dihydrotachysterol, paricalcitol, or