

findings suggest that the *SDHB* gene not only plays a role in the pathogenesis of a subgroup of inherited pheochromocytomas but also can be involved in a subgroup of truly sporadic pheochromocytomas.

Francien H. van Nederveen, M.D.
Esther Korpershoek, B.Sc.

Erasmus University Medical Center
3000 CA Rotterdam, the Netherlands

Jacques W.M. Lenders, M.D., Ph.D.
Radboud University Medical Center Nijmegen
6525 GA Nijmegen, the Netherlands

Ronald R. de Krijger, M.D., Ph.D.
Winand N.M. Dinjens, Ph.D.

Erasmus University Medical Center
3000 CA Rotterdam, the Netherlands
w.dinjens@erasmusmc.nl

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Dietary Supplement–Induced Vitamin D Intoxication

TO THE EDITOR: Vitamin D intoxication that is associated with the consumption of dietary supplements is reported rarely.¹ In 2004, the Food and Drug Administration (FDA) learned of the following case.

A 58-year-old woman with diabetes mellitus and rheumatoid arthritis began taking a dietary supplement called Solutions IE Ageless Formula II on January 12, 2004. Fatigue, constipation, back pain, forgetfulness, nausea, and vomiting soon developed. On March 15, 2004, she was hospitalized because her speech was slurred, and a blood glucose reading taken at home was 30 mg per deciliter. On admission, her serum levels were as follows: calcium, more than 3.75 mmol per liter; 25-hydroxyvitamin D, 1171 nmol per liter (normal range, 22 to 135); 1,25-dihydroxyvitamin D, 305 pmol per liter (normal range, 36 to 144); parathyroid hormone, 12 ng per liter (normal range, 10 to 65); calcitonin, 4.5 ng per liter (normal range, 0 to 4.6); albumin, 31 g per liter; phosphorus, 0.81 mmol per liter; blood urea nitrogen, 18.6 mmol per liter; and creatinine, 265 μ mol per liter.

The patient was treated with intravenous normal saline, furosemide, and pamidronate disodium. On March 19, 2004, while still hospitalized,

she was informed by the product distributor of an error in product formulation such that 188,640 IU of vitamin D₃ had been added to the daily serving size of six capsules instead of the intended 400 IU. At discharge on March 24, the patient's serum levels were as follows: calcium, 2.60 mmol per liter; blood urea nitrogen, 10.0 mmol per liter; and creatinine, 221 μ mol per liter. The patient died from a cause unknown to us on January 8, 2005.

Laboratory analysis of the product by the FDA, obtained from one of two lots reportedly overfortified with vitamin D₃, revealed 186,906 IU of vitamin D₃ in each serving size of six capsules, indicating that the patient had consumed roughly 90 times the recommended safe upper limit of 2000 IU per day. Long-term daily vitamin D consumption of more than 40,000 IU (1000 μ g) is needed to cause hypercalcemia in healthy persons.² In March 2004, the product distributor announced that during the previous month it had received three complaints from customers who had been hospitalized for hypercalcemia and vitamin D toxicity. The same month, the product manufacturer recalled 1600 bottles of the product. The case described here underscores the need for the manufacturers of dietary supplements to

rigorously monitor levels of ingredients in products and for physicians to be aware of supplements their patients may be taking.

Karl C. Klontz, M.D.

David W. Acheson, M.D.

Food and Drug Administration
College Park, MD 20740

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