# Gastric Bypass Patients May Need Vitamin D

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NATIONAL HARBOR, MD. — Vitamin D depletion in morbidly obese women who undergo laparoscopic Roux-en-Y gastric bypass can be resolved within about 3 months after starting weekly pharmacologic doses of the vitamin, according to the findings of a randomized trial.

Weekly oral dosing of 50,000 IU 25-hydroxyvitamin D also appeared to slow the rate of decline in bone mineral density (BMD) of the hip as well as increase the rate of hypertension resolution, Dr. Arthur M. Carlin reported at the annual meeting of the American Society for Metabolic and Bariatric Surgery.

Low levels of vitamin D have been implicated in the pathophysiology of hypertension, diabetes, cancer, osteoarthritis, and autoimmune diseases, Dr. Carlin said.

In one of several previous reports about vitamin D depletion in gastric bypass patients from Dr. Carlin and his coinvestigators at Henry Ford Hospital, Detroit, patients had a 60% prevalence of vitamin D depletion before surgery, based on serum concentrations of 20 ng/mL or less of 25-hydroxyvitamin D (Surg. Obes. Relat. Dis. 2006;2:98-103).

When the investigators began supplementing bariatric patients postoperatively with 1,500 mg calcium and 800 IU vitamin D, they saw a 20% rise in mean serum vitamin D levels from 20 to 24 ng/mL; the percentage of their patients with vitamin D depletion dropped from 53% to 44% (Surg. Obes. Relat. Dis. 2006;2:638-42).

During 2005-2006, Dr. Carlin and his colleagues randomized 60 morbidly obese women to either a weekly oral dose of 50,000 IU vitamin D or placebo. All of the patients received daily supplements of 1,500 mg calcium and 800 IU vitamin D.

After 1 year, weekly receipt of 50,000 IU vitamin D raised patients' mean serum vitamin D concentration to 38 ng/mL, which was significantly higher than a mean level of 15 ng/mL in placebo-treated patients. The patients reached the mean of 38 ng/mL after 3 months and it remained steady throughout the rest of the year.

Vitamin D depletion remained in significantly fewer of the patients who received the extra weekly dose, compared with those who received placebo (14% vs. 85%, respectively). Noncompliance accounted for continued vitamin D depletion in three patients who were supposed to take 50,000 IU each week.

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Secondary hyperparathyroidism continued to occur in about 40% of patients in both groups. Bone turnover markers increased to similar levels in the groups.

After 1 year, patients who were treated weekly with 50,000 IU vitamin D lost significantly less BMD in the hip than did placebo-treated patients (8% vs. 12%, respectively), which suggests that vitamin D "attenuates this bone loss," said Dr. Carlin, who reported no conflicts of interest.

A significantly greater proportion of hypertensive patients who received extra vitamin D resolved their hypertension than did those who received placebo (75% vs. 32%, respectively).

These results corroborate those from another study in which Dr. Carlin and his associates found that hypertension resolved in a significantly higher percentage of hypertensive patients with adequate vitamin D levels than in those with vitamin D depletion (61% vs. 42%) (Am. J. Surg. 2008;195:349-52).

In addition to giving daily calcium and vitamin D supplements to all gastric bypass patients, Dr. Carlin and his coinvestigators now recommend giving weekly 50,000 IU doses of vitamin D to patients with vitamin D depletion after gastric bypass.

In gastric bypass patients, poor mixing of bile salts at the Roux limb anastomosis leads to malabsorption of fat-soluble vitamins, such as vitamin D. This problem is compounded by the fact that the major site of vitamin D–dependent calcium absorption occurs in the duodenal proximal jejunal bypass. The body compensates for this resulting lack of calcium absorption by elevating levels of parathyroid hormone, which takes calcium from bones, Dr. Carlin said. ■