

Abstract

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Serum fat-soluble vitamin deficiency and abnormal calcium metabolism after malabsorptive bariatric surgery.

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BACKGROUND: Weight loss after biliopancreatic diversion or duodenal switch is due to decreased calorie absorption secondary to fat malabsorption. Fat malabsorption may also cause essential fat-soluble vitamin deficiencies, which may have severe clinical consequences and alter calcium metabolism.

OBJECTIVE AND METHODS: Serum vitamins A, D, E, and K, zinc, parathyroid hormone, corrected calcium, and alkaline phosphatase levels were measured in a cohort of patients who had previously undergone biliopancreatic diversion. Two bariatric surgery units were involved in the study: New York University School of Medicine (New York, NY), and the Wesley Medical Center (Brisbane, Australia). A total of 170 patients completed the study.

RESULTS: The incidence of vitamin A deficiency was 69%, vitamin K deficiency 68%, and vitamin D deficiency 63% by the fourth year after surgery. The incidence of vitamin E and zinc deficiency did not increase with time after surgery. The incidence of hypocalcemia increased from 15% to 48% over the study period with a corresponding increase in serum parathyroid hormone values in 69% of patients in the fourth postoperative year. **There is a progressive increase in the incidence and severity of hypovitaminemia A, D, and K with time after biliopancreatic diversion and duodenal switch.** Calcium metabolism is affected with an increasing incidence of secondary hyperparathyroidism and evidence of increased bone resorption in 3% of patients.

CONCLUSION: **Long-term nutritional monitoring is necessary after malabsorptive operations for morbid obesity.**

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