25TH NATIONAL & 11TH INTERNATIONAL ANNUAL CONGRESS
ON RESEARCH AND TECHNOLOGY OF IRANIAN MEDICAL SCIENCES STUDENTS
URMIA UNIVERSITY OF MEDICAL SCIENCES, URMIA, IRAN

Effect of Bypass and Sleeve Surgery on the Level of Vitamin D3, Vitamin A, CU, Zn, Ferritin, and Iron in Obese Patients (12 Months Follow-Up)

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Citation:
Asakereh M, Aalipour M, Hagheghat N, Gholami R, Saeedi F, Shamakh P. Effect of Bypass and Sleeve Surgery on the Level of Vitamin D3, Vitamin A, CU, Zn, Ferritin, and Iron in Obese Patients (12 Months Follow-Up). *Iranian biomedical journal*. Supplementary (12-2024): 313.

ABSTRACT

Introduction: Obesity is one of the most worrying global health problems. It is defined as abnormal or excessive body fat accumulation, which may lead to health disorders. Bariatric surgery is currently an option for obesity treatment, which generally results in weight loss, control of obesity-related diseases, and reduction in mortality. Important places for the absorption of vitamins and minerals, such as the duodenum and proximal jejunum, may be removed after bariatric surgery. Considering that the nutritional status and the level of biochemical factors in patients undergoing surgery affect the complications and the success of surgery, this study was designed to compare the level of biochemical factors in patients who underwent bariatric surgery.

Methods and Materials: In this retrospective cohort study, 685 patients underwent obesity-related surgery, which included sleeve gastrectomy (SG) and Roux-en-Y Gastric Bypass (RYGB). Vitamin D3 (Vit D3), Vit A, Cu, Zn, Vit B12, and ferritin were measured before the operation and 12 months after the operation.

Results: The level of Vit D3 decreased in RYGB group to 21.34 ± 14.94, compared to SG group, which had a level of 14.16 ± 7.70 (p = 0.156). Additionally, the Vit B12 level decreased in the RYGB group to 237.57 ± 18.25, while the SG group also had a level of 237.57 ± 18.25 (p = 0.660). The amount of Zn decreased by 24.85 ± 6.44 and 18.53 ± 2.88 (p = 0.155), and that of Cu reduced by 38.17 ± 12.83 and 225.50 ± 20.12 (p = 0.443) in the RYGB and SG groups, respectively. Also, the level of Vit A decreased by 21.07 ± 0.8 and 7.69 ± 1.00 (p = 0.811), and the level of Hb decreased by 1.51 ± 0.65 and 0.93 ± 0.65 (p = 0.000) groups in the RYGB and SG groups, respectively. Ferritin and iron levels reduced by 83.78±6.22 and 44.44 ± 29.85 (p = 1.483) and by ±11.00 and 21.21 ± 6.00 (p = 0.428) in the RYGB and SG groups, respectively.

Conclusion and Discussion: According to the findings of this study, bariatric surgery reduces the level of Vit D3, Vit A, Cu, Zn, Vit B12, ferritin, and iron insignificantly, but the decrease in hemoglobin level was significant.

Keywords: Bariatric surgery, Minerals, Obesity, Vitamins

[DOI: 10.61186/ibj.25th-11th-IACRTIMSS]