

## Effect of Bariatric Surgery on Thyroid Function and Thyroxine Dose Requirement in Hypothyroid Obese Patients

**Mohamed Aly Elsherif**

Hamad General Hospital and Qatar Metabolic Institute, Qatar

**Introduction:** Hypothyroidism is associated with weight increase that could be attributed to decrease in basal metabolic rate and thermogenesis. Influence of bariatric surgery on thyroid hormones in normal thyroid function and subclinical hypothyroid patients were investigated, though a scanty published data explored the effects of bariatric surgery on overt hypothyroid patients.

**Aim:** To assess the influence of bariatric surgery on thyroid hormone levels and on thyroxine requirement in clinically hypothyroid obese patients as well as correlation between patients' initial BMI, weight loss (BMI and % excess weight loss) and thyroid status.

**Methods:** A retrospective review of 158 morbidly obese hypothyroid patients on thyroxinereplacement who underwent laparoscopic sleeve gastrectomy (LSG), gastric bypass (RYGB) and laparoscopic gastric greater curvature plication (LGGCP) between 2011-2015, were evaluated for changes in thier thyroid condition at 6, 12 and 24 months post operatively. Dose of thyroxine and weight loss were correlated.

**Results:** Mean age =38.7 years. Mean preoperative BMI was 45.8, which decreased at 2 years to 33. About 85.4% of patients underwent LSG, 12% RYGB and 2.5% LGGCP. EWL% at 6, 12, 24 months was 27.6%, 53.4% and 58.8% respectively. Our study has demonstrated a statistically significant positive association between serum TSH and BMI. The mean pre-op thyroxine dose of 102.7 mcg dropped to 68.4 mcg at 24 months after surgery. 42.5% of patients had improved thyroid status at 6 months, 8.2% were cured and 2.2% deteriorated as evident by reduced thyroxin dose, stop of thyroxin replacement and increased thyroxine doserequirements respectively. Among the 67 patients whose thyroid status improved, 82% underwent LSG, 16.4% RYGB and 1.5% LGGCP.

**Conclusion:** Bariatric surgery significantly improves thyroid function in hypothyroid patients and can be curative in some cases. Laparoscopic sleeve gastrectomy seems the favourable procedure associated with improvement and cure of hypothyroidism. Further studies with larger sample size are still needed to further explore the cause effects and the possible mechanisms behind.