World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:11, No:05, 2017

Analyzing the Impact of Bariatric Surgery in Obesity Associated Chronic Kidney Disease: A 2-Year Observational Study

Authors : Daniela Magalhaes, Jorge Pedro, Pedro Souteiro, Joao S. Neves, Sofia Castro-Oliveira, Vanessa Guerreiro, Rita Bettencourt- Silva, Maria M. Costa, Ana Varela, Joana Queiros, Paula Freitas, Davide Carvalho

Abstract : Introduction: Obesity is an independent risk factor for renal dysfunction. Our aims were: (1) evaluate the impact of bariatric surgery (BS) on renal function; (2) clarify the factors determining the postoperative evolution of the glomerular filtration rate (GFR); (3) access the occurrence of oxalate-mediated renal complications. Methods: We investigated a cohort of 1448 obese patients who underwent bariatric surgery. Those with basal GFR (GFR0) < 30mL/min or without information about the GFR 2-year post-surgery (GFR2) were excluded. Results: We included 725 patients, of whom 647 (89.2%) women, with 41 (IQR 34-51) years, a median weight of 112.4 (IQR 103.0-125.0) kg and a median BMI of 43.4 (IQR 40.6-46.9) kg/m2. Of these, 459 (63.3%) performed gastric bypass (RYGB), 144 (19.9%) placed an adjustable gastric band (AGB) and 122 (16.8%) underwent vertical gastrectomy (VG). At 2-year post-surgery, excess weight loss (EWL) was 60.1 (IQR 43.7-72.4) %. There was a significant improve of metabolic and inflammatory status, as well as a significant decrease in the proportion of patients with diabetes, arterial hypertension and dyslipidemia ($p < 0.0001$). At baseline, 38 (5.2%) of subjects had hyperfiltration with a GFR0 ≥ 125mL/min/1.73m2, 492 (67.9%) had a GFR0 90-124 mL/min/1.73m2, 178 (24.6%) had a GFR0 60-89 mL/min/1.73m2, and 17 (2.3%) had a GFR0 < 60 mL/min/1.73m2. GFR decreased in 63.2% of patients with hyperfiltration (ΔGFR=-2.5±7.6), and increased in 96.6% (ΔGFR=22.2±12.0) and 82.4% (ΔGFR=24.3±30.0) of the subjects with GFR0 60-89 and < 60 mL/min/1.73m2, respectively ($p < 0.0001$). This trend was maintained when adjustment was made for the type of surgery performed. Of 321 patients, 10 (3.3%) had a urinary albumin excretion (UAE) > 300 mg/dL (A3), 44 (14.6%) had a UAE 30-300 mg/dL (A2) and 247 (82.1%) has a UAE < 30 mg/dL (A1). Albuminuria decreased after surgery and at 2-year follow-up only 1 (0.3%) patient had A3, 17 (5.6%) had A2 and 283 (94%) had A1 ($p < 0,0001$). In multivariate analysis, the variables independently associated with ΔGFR were BMI (positively) and fasting plasma glucose (negatively). During the 2-year follow-up, only 57 of the 725 patients had transient urinary excretion of calcium oxalate crystals. None has records of oxalate-mediated renal complications at our center. Conclusions: The evolution of GFR after BS seems to depend on the initial renal function, as it decreases in subjects with hyperfiltration, but tends to increase in those with renal dysfunction. Our results suggest that BS is associated with improvement of renal outcomes, without significant increase of renal complications. So, apart the clear benefits in metabolic and inflammatory status, maybe obese adults with nondialysis-dependent CKD should be referred for bariatric surgery evaluation.

Keywords : albuminuria, bariatric surgery, glomerular filtration rate, renal function
Conference Title : ICO 2017 : International Conference on Obesity
Conference Location : London, United Kingdom
Conference Dates : May 25-26, 2017