Abstract

Introduction: Obesity and type 2 diabetes mellitus (hereinafter referred to as DM2T) are called the greatest epidemic of the 21st century. Its occurrence is on the rise not only in the Czech Republic but all around the world. Overweight and obesity are the key factors in developing DM2T, they are affecting the occurrence of the disease in men in 64 % and 77 % in women. Based on the observations, nearly 60 % of the population in the Czech Republic are considered obese or overweight. Bariatric/Metabolic surgery is one of the most effective treatments of the DM2T.

Objectives: The objective of this thesis is to describe and analyze the effect of each bariatric surgery on the patients of 3rd Internal Clinic of Endocrinology and Metabolism, General University Hospital and 1st Medical Faculty, Charles University in Prague within the first two years post-surgery. The same time period is observed to monitor the DM2T compensation depending on the type of bariatric surgery.

Methodology: 128 patients were observed (including 52 patients diagnosed with DM2T), that underwent the bariatric surgery. The data were gathered from the medical records in the hospital´s information system Medea. These data were further analyzed, processed and assessed in Microsoft Excel and also together with the agency STEM/MARK a.s. This project is characterized as a quantitative research, carried out in the form of retrospective observation.

Results: The success rate of the weight reduction in the first year (Y1) was at 95,87 % and 85,71 % in the second year (Y2) post-surgery. The average weight loss (% EWL) was 39,95± 25 % within the first year post surgery and 36,62 ± 31,73 % two years post-surgery. Based on our results, the most effective – in terms of the EWL % rate – seems to be the Roux-en-Y gastric bypass (RYGB), where Y1 observed the average rate of EWL at 53,3 ± 19,5 % (compared to laparoscopic gastroplasty (LGP): 36,2 ± 25,7 %; sleeve gastrectomy (LSG): 42,4 ± 22,4 %). The rate increased even more two years post-surgery to EWL 59 ± 24,4 %. In LGP and LSG, the % EWL in Y2 decreased. All types of the bariatric surgery can be considered effective due to the improvement of the metabolic parameters in DM2T patients. The average levels of HbA1c in dataset DM2T (n=41) decreased from 60,6 ± 21,0 mmol/mol to 44,8± 13,2 mmol/mol in Y1 and to 44,5 ± 12,8 mmol/mol in Y2. Significant decrease in the levels of HbA1c was observed in patients that underwent the RYGB. The average fasting blood glucose levels decreased from 8,4 ±3,7 mmol/l to 5,9 ± 1,9 mmol/l in Y1 and to 6,4 ± 2,1 mmol/l in Y2.

Conclusion: The results of our research confirmed the effectiveness of bariatric/metabolic surgery for treatment of obesity and its positive impact on better compensation of DM2T. The effectiveness on weight loss and compensation of DM2T was proven mainly in RYGB.

Keywords: obesity, bariatric surgery, bariatric surgical procedure, diabetes compensation, diabetes mellitus type 2