Title: Influence of the Sleep Pattern in Patients Submitted to Bariatric Surgery

NCT number: 03485352

Date: 03/04/2021

Statistical analysis

Data were analysed using SPSS software version 22.0 (SPSS, Inc., Chicago, IL, USA), and $p < 0.05$ was considered to be statistically significant. Data normality was tested by the Kolmogorov–Smirnov test.

The Student's t-test for independent samples or the Mann–Whitney test was performed to compare independent variables, according to the variable's distribution. Pearson's chi-square test was used to compare the proportion variables. The participants were categorized as follows: initially, the mean exposure to SJL of the three assessment periods was calculated. Subsequently, the median of this distribution was determined and used to categorize the participants into two groups: large exposure to SJL (mean exposure > median) or small exposure to SJL (mean exposure ≤ median).

Generalised estimating equations with gamma distribution and adjusted for possible confounding factors were used to examine the effect of follow-up time, SJL exposure level (large or small) and the interaction between these factors on the evolution of metabolic, food consumption and anthropometric parameters in the preoperative evaluation, and in the third and sixth months after the surgical intervention. Metabolic variables analyses were adjusted for sex, age, surgical technique, family income, use of sleep medications, physical activity, BMI, energy intake, type II diabetes mellitus and shift work. Anthropometric and food intake variables analyses were adjusted for all the same variables that were used in the adjustments of the metabolic analysis, except for BMI and energy intake, respectively.

Generalised Linear Models with gamma distribution and adjusted for confounding factors were used to verify the effect of exposure to SJL level (large or small) on the difference (delta) in anthropometric and metabolic parameters between the preoperative evaluation and the sixth month after surgery. Sequentially, Sidak's test was performed to verify the pairwise comparisons (higher and lower exposure to SJL) in the Generalised Estimating Equations and Generalised Linear Models analyses.

Multiple linear regression analysis adjusted for possible confounding factors (sex, age, family income, diagnosis of type II diabetes, surgical technique, shift work, use of sleep medication, physical activity and energy intake) was performed to evaluate the association between the mean SJL at the three assessment periods and the delta of the anthropometric and metabolic parameters, considering the period from the preoperative evaluation to the sixth month after surgery. The dependent variables (anthropometric and metabolic parameters) that violated the assumption of normality were transformed using the common log transformation.