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Influence of the lockdown due to COVID-19 on weight-loss results during the first year after sleeve gastrectomy

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Abstract

Introduction: COVID-19 pandemic has lead to lockdown of population in many countries. In Spain, the state of alarm was established from March 15 to June 20, 2020. Usually this fact decreased people’s mobility and physical activity, in addition to producing or exacerbating psychological disorders. Our aim was to determine the influence that this condition had over the short-term ponderal results of patients undergoing laparoscopic vertical gastrectomy from May 2019 to May 2020.

Methods: Case-control study for comparing the percentage of excess weight lost (%EWL) and the percentage of total weight lost (%TWL) of patients that underwent a VG during the last year, so they were affected by lockdown in April and part of March 2020 (group 1), to the %EWL and %TWL of a control group (group 2), obtained from our previous series.

Results: The mean %EWL in group 1 is 47.37 ± 18.59 and in group 2 is 51.13 ± 17.59, being P= .438. Meanwhile, the mean %TWL in group 1 is 21.14 ± 8.17 and in group 2 is 24.67 ± 8.01, with P=.115.

Conclusions: Population lockdown by COVID-19 did not get worse short-term results of vertical gastrectomy. More studies with a larger number of patients are necessary to draw firm conclusions.

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Influencia del confinamiento por COVID-19 en los resultados ponderales durante el primer año tras la gastrectomía vertical

**RESUMEN**

Introduction: La pandemia por COVID-19 ha obligado al confinamiento de la población en muchos países. En España, el estado de alarma se estableció desde el 15 de marzo al 20 de junio del 2020. Este hecho, por lo general, disminuyó la movilidad y la actividad física de las personas, además de producir o exacerbar alteraciones psicológicas. Nuestro objetivo es analizar la influencia que esta situación ha ejercido sobre los resultados ponderales a corto plazo de los pacientes tratados mediante una gastrectomía vertical laparoscópica entre mayo del 2019 y mayo del 2020.

**Métodos:** Estudio de casos y controles donde se compararon el porcentaje de exceso de peso perdido (%EWL) y el porcentaje de peso total perdido (%TWL) de los pacientes intervenidos en el último año y a los que ha afectado el confinamiento durante el mes de abril y parte de marzo del 2020 (grupo 1; n = 20), con el de un grupo control (grupo 2; n = 40) de nuestra casuística previa.

**Resultados:** El %EWL medio en el grupo 1 es de 47,37 ± 18,59 y en el grupo 2 es de 51,13 ± 17,59, siendo la p = 0,438. Por su parte, el %TWL medio en el grupo 1 es de 21,14 ± 8,17 mientras que en el grupo 2 es de 24,67 ± 8,01, resultando la p = 0,115.

**Conclusiones:** El confinamiento de la población por COVID-19 no empeoró los resultados ponderales a corto plazo de la gastrectomía vertical. Son necesarios más estudios con un mayor número de pacientes para obtener conclusiones más sólidas.

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compared between cases and controls. A descriptive statistical analysis was conducted for each of the variables contemplated, using the median (range) and the mean (standard deviation) for continuous variables depending on whether their distribution was non-normal or normal, respectively. The distribution of these variables was analyzed using the Kolmogorov–Smirnov or Shapiro–Wilk statistical tests, as appropriate. For qualitative variables, absolute frequencies and their relative frequencies were used. For the study of the relationship between the variables, the chi-square test was applied, including the analysis of residuals between 2 qualitative variables, the Pearson correlation if the variables were quantitative, and the comparison of means (Student’s t) or the Mann–Whitney U, as appropriate for the study of the relationship between a qualitative and a quantitative variable. In all situations, an association with a P value less than .05 was considered statistically significant. All data were analyzed with IBM SPSS statistics v.24 (SPSS, Inc. Chicago, IL, USA).

Results

From May 2019 to May 2020, 20 patients (group 1) underwent SG in our unit. Specifically, and as of this writing, 6 patients underwent surgery 10 months ago, 2 patients 7 months ago, 2 patients 6 months ago, 4 patients 5 months ago, 2 patients 4 months ago, one patient 3 months ago, 2 patients 2 months ago, and one patient had only one month of postoperative follow-up (Fig. 1). Group 2 was made up of 40 patients evenly distributed among the different postoperative follow-up times at a ratio of 1:2 (one case for every 2 control subjects). Group 2 is homogeneous with group 1, as shown in Table 1. There were no differences between the two groups in terms of age, sex, presence of comorbidities, diabetes, arterial hypertension, dyslipidemia, or obstructive sleep apnea (OSA).

Regarding the assessment of the weight-loss results, we observed that there were no statistically significant differences in either the %EWL or %TWL between the two groups, although poorer results were observed in the patients in group

| Table 1 – Epidemiological characteristics and weight-loss results for both groups. |
|---------------------------------|-----------------|-----------------|-----------------|
|                                | Group 1 n = 20  | Group 2 n = 40  | P               |
| Age (yrs)*                     | 47.30 ± 10.13   | 44.90 ± 10.37   | .072            |
| Sex (M/F)                      | 6/14            | 14/26           | .777            |
| Initial BMI (kg/m²)*           | 41.76 ± 5.37    | 44.57 ± 5.4     | .062            |
| Presence of comorbidities (%)  |                 |                 | .756            |
| Diabetes (%)                   | 6 (30)          | 10 (25)         | .760            |
| Hypertension (%)               | 10 (50)         | 16 (40)         | .582            |
| OSA (%)                        | 5 (25)          | 11 (27.5)       | 1.000           |
| Dyslipidemia (%)               | 0 (0)           | 5 (8.3)         | .060            |
| % EWL*                         | 47.37 ± 18.59   | 51.13 ± 17.59   | .438            |
| % TWL*                         | 21.14 ± 8.17    | 24.67 ± 8.01    | .115            |

*a Mean ± standard deviation.
Discussion

Bariatric surgery is the most effective and long-lasting treatment for morbid obesity today. Several studies support its cost-benefit ratio by providing a significant reduction in weight, as well as the resolution or substantial improvement of various associated comorbidities. All this results in lower pharmaceutical costs, as well as the greater work capacity and productivity of these patients. However, weight loss is more evident during the first year after the procedure, which increases motivation and establishes healthy lifestyle habits in many patients. One of these pillars is physical activity, which is especially important in subjects who have undergone a restrictive technique like SG, and a physical training program has been shown to prevent weight regain in the medium term, reducing body fat, glycemia and cholesterol.

As a result of COVID-19, the Spanish population was confined to their homes, which reduced the mobility and physical exercise of most individuals, causing stress and fear in addition to addictions, depression, and even suicide. In this context, it would be concerning if bariatric surgery did not meet the excellent previous results and durability, since its cost-effectiveness could be called into question.

In our study, we were unable to demonstrate that confinement had a decisive or significant effect on short-term weight results, although poorer results were observed. We believe, however, that an increase in the number of cases could amplify this difference, since a preliminary calculation of the sample size required the recruitment of 135 patients per group, which was impossible in our case. Another limitation of the study is that some weight data of the patients in group 1 were obtained over the telephone, with possible variabilities resulting from the moment and the tool with which they were calculated.

Several authors have denounced the injustice that the approach to the COVID-19 pandemic has represented for the morbidly obese. This is mainly because other surgical procedures have been prioritized over bariatric surgery, and there has also been increased stigmatization that this situation has generated in this subgroup of patients. Other authors have described prioritization protocols for both bariatric and metabolic surgery. Even so, it is difficult to guess the evolution of the pandemic and whether confinement and social isolation will be imposed again. Bariatric surgery is the best treatment for thousands of people who have a serious illness, so we must demand its continuity from the competent authorities. Nevertheless, we must ensure that treatment results will continue to meet the established standards. Given the unpredictable evolution of the global COVID-19 pandemic, the nutritional and psychological support of patients undergoing surgery as well as those on the surgical waiting list should be fomented. In addition, the frequency of multidisciplinary committees should be increased in order to establish priorities until the healthcare situation is normalized. Finally, further studies are necessary with a greater number of patients to determine the actual influence that the confinement (and potential future confinements) has had on weight-loss results in order to develop transparent, effective protocols.

Conclusions

The confinement of the population in Spain during the months of March, April and May 2020 did not significantly alter the %EWL or the %TWL of patients who underwent SG compared to patients whose first postoperative year was not affected by the COVID-19 pandemic. However, more studies with larger samples are necessary to reach more solid conclusions.

Conflict of interests

The authors have no conflict of interests to declare.

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