THE EFFECT OF THE CORONAVIRUS PANDEMIC ON BARIATRIC SURGERY COMPLICATIONS.

Neta Lotem MD[1], Uri Netz MD,[1] Shahar Atias MD[1] , Itzhak Avital MD MBA[1] and **Zvi Perry** MD PhD[1]
[1]Department of Surgery A, Soroka University Medical Center, Beer-Sheva, Israel.



Introduction

- Due to the Covid-19 pandemic, bariatric surgeries were postponed increasing inpatient capacity, as well as many restrictions.
- The restrictions were accompanied by a decline in patient visits to the Emergency Departments.
- The diminished visits to emergency services have led to excessive morbidity and mortality in many medical fields.
- These conditions may have caused a decrease in postoperative monitoring of bariatric patients, along with a late and more complicated onset of complications.

Aim

The aim of the current study was to evaluate the differences in the post-surgery bariatric complications in the period of the COVID-19 pandemic compared with a similar period before.

Materials and methods

- This was retrospective cohort study, comparing the patients who were admitted to the Clalit HMO Hospitals, Israel due to bariatric surgery complications.
- We compared the first three months of 2020 (January till March, before the first wave of COVID-19 in Israel) to the corresponding months in 2021).
- The data for our research will be collected from hospital medical records, records of the attending physician, and ED records of our HMO. Collection of relevant data included variables, such as age during surgery, BMI and weight prior to surgery, smoking status, etc.
- Data analysis was performed using SPSS 26.0 (SPSS, Chicago, IL) software.
- A multiple variable analysis was conducted using logistic and linear regression to assess the effect of the COVID-19 pandemic on bariatric post-op complications, compared to the complication rate the previous year.

Results

Figure 1:

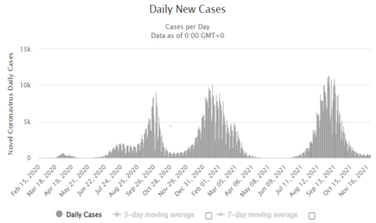


Figure 1 - COVID-19 new cases in Israel 19 new cases in Israel (13).

- At our study, we included a total of 412 patients who had a past medical history of a bariatric surgery and came to a Clalit ER between the month March to May of 2019 and 2020 – with sample sizes of 231 and 181, respectively. Only 38 (9.2%) of them received a diagnosis of a bariatric complication during their hospitalization (21 patients in 2019, and 17 patients on 2020).
- Table 1 – Shows baseline characteristics of the study population. Table 2 – shows various aspects related to the index hospitalization.
- Table 3 - describes the bariatric complications found among the study population. Table 4 - describes the associations between various patient characteristics and clinical outcomes in the studied population
- There was no difference between the years in baseline demographic variables, as well as in background morbidity.
- No difference was found in the rate of early discharge, the diagnosis during hospitalization, or the main complaint, neither in days of hospitalization.

Table 1- Demographic Characteristics

Characteristic	2019, N = 231[1]	2020, N = 181[1]	p-value[2]
Age upon admission (Years)	55.80± (16.70)	54.34± (17.49)	0.5
Gender			
Female	132 / 231 (57%)	114 / 181 (63%)	0.2
Male	99 / 231 (43%)	67 / 181 (37%)	
Born in Israel	130 / 231 (56.2%)	105 / 181 (58%)	0.7
HMO			
Clalit	169 / 231 (73%)	130 / 181 (72%)	0.9
Other HMO	61 / 231 (26%)	51 / 181 (28%)	
No information	1 / 231 (0.4%)	0 / 181 (0%)	
Ethnicity			
Jewish	206 / 231 (89%)	144 / 181 (80%)	0.022
Moslem	18 / 231 (7.8%)	29 / 181 (16%)	
No information	7 / 231 (3.0%)	8 / 181 (4.4%)	
Residence district in Israel			
South	171 / 230 (74%)	140 / 181 (77%)	0.5
Center	43 / 230 (19%)	33 / 181 (18%)	
North	16 / 230 (7.0%)	8 / 181 (4.4%)	
Admitted to which hospital			
Soroka	166 / 231 (72%)	134 / 181 (74%)	0.5
Other Clalit hospitals	65 / 231 (28%)	47 / 181 (26%)	
If the patient died- Age at death (Years)	68.76± (16.21)	70.42± (14.54)	0.6
Age at bariatric procedure (Years)	48.33± (16.43)	46.56± (16.92)	0.3
Years from Bariatric procedure to the current hospitalization	7.52± (5.15)	7.78± (5.02)	0.5
Known Diabetes Mellitus diagnosis in past medical history	94 / 231 (41%)	70 / 181 (39%)	0.7
Known Hypertension diagnosis in past medical history	93 / 231 (40%)	64 / 181 (35%)	0.3
Known Obstructive sleep apnea diagnosis in past medical history	29 / 231 (13%)	19 / 181 (10%)	0.5

[1] Mean± (SD); n / N (%)
[2] Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test; Wilcoxon rank sum exact test

Table 2 - Variables related to the current hospitalization.

Characteristic	2019, N = 231[1]	2020, N = 181[1]	p-value[2]
Released from the hospital within 24 hours after admission	42 / 231 (18%)	44 / 181 (24%)	0.13
Mean Number of hospitalization days	4.64± (7.65)	5.30± (20.82)	0.2
Last BMI measurement before hospitalization	30.66± (7.67)	32.00± (8.76)	0.2
Number of re-hospitalizations, after the current hospitalization	4.26± (7.39)	3.38± (5.91)	0.035
patients who have died after current hospitalization	40	29	0.73
If the patient died- Number of days between the current hospitalization and the patient's death (if patient died)	441.03± (420.68)	341.17± (316.00)	0.4

[1] Mean± (SD); n / N (%)
[2] Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test; Wilcoxon rank sum exact test

Table 3 - Bariatric complications

Characteristic	2019 N = 231[1]	2020 N = 181[1]	p-value[2]
Late bariatric complications	12 / 231 (5.2%)	5 / 181 (2.8%)	0.4
EROSION OF GASTRIC BAND	1 / 12 (8.3%)	1 / 5 (20%)	
INFECTION DUE BARIATRIC PROCEDURE	3 / 12 (25%)	1 / 5 (20%)	
INFECTION DUE GASTRIC BAND PROCEDURE	0 / 12 (0%)	1 / 5 (20%)	
SLIPPAGE OF GASTRIC BAND	8 / 12 (67%)	2 / 5 (40%)	
Other bariatric complications (OTHER COMPLICATIONS OF OTHER BARIATRIC PROCEDURE, UNSPECIFIED INTESTINAL OBSTRUCTION, ADHESIONS WITH OBSTRUCTION	5 / 231 (3.9%)	12 / 181 (6.6%)	0.2

[1] n / N (%)
[2] Fisher's exact test; Pearson's Chi-squared test

Table 4 - OR for logit regression model

Characteristic	OR[1]	95% CI[2]	p-value
Year of Admission	1.28	(0.62-2.64)	0.495
Age at Admission	0.00	(0.01-0.17)	0.022
Gender	1.45	(0.67-3.32)	0.356
Last BMI measurement before current hospitalization	0.96	(0.91-1.01)	0.132
Age at bariatric procedure (Years)	**61,120**	**(5.90, 1,034,636,640)**	**0.022**
Days from Bariatric procedure to the current hospitalization	1.03	(1.00-1.06)	0.023
Diabetes Mellitus diagnosis in past medical history	0.57	(0.22-1.37)	0.220
Hypertension diagnosis in past medical history	0.53	(0.19-1.37)	0.200
Obstructive sleep apnea diagnosis in past medical history	0.29	(0.02-1.50)	0.234

OR = Odds Ratio, CI = Confidence Interval

Discussion and Conclusions

- ✓ The current study, yielded unexpected findings challenging our initial hypotheses.
- ✓ Contrary to our expectations, the incidence of complications declined in 2020, prompting a reassessment of factors influencing these outcomes. The nuanced exploration into patient demographics, hospitalization details, mortality rates, and associations with various characteristics has illuminated significant predictors, such as age at admission and days from the bariatric procedure to hospitalization.
- ✓ These insights highlights the need for further investigation into the intricate relationship between the pandemic and bariatric complications, exploring variables that may have contributed to these observed trends. While this study provides valuable insights, additional research should delve deeper into the specific mechanisms underlying the decline in complications during the pandemic.

References

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