

**Supplementary information to:**

**Letter to the editor:**

**WHAT ARE RISK FACTORS FOR COVID-19 VACCINE  
BREAKTHROUGH INFECTIONS IN PATIENTS WITH PREVIOUS  
HISTORY OF BARIATRIC SURGERY?**

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**Table 1:** Operative details, outcome and incidence of COVID-19 infections in **138 bariatric patients**

Intervention	Open 18 (13.04 %)	Laparoscopy 120 (86.96 %)
Gastric bending	0	3
Biliopancreatic diversion	10	7
Mini bypass	2	52
Roux-en-Y gastric bypass	4	11
Sleeve gastrectomy	2	47
Time of intervention		
< 1 year	25 (18.2 %)	
1-5 years	64 (46.4 %)	
> 5 years	49 (35.5 %)	
Weight loss	48.79 ± 20.53 kg	
COVID-19 infection		
Yes	48 (34.8 %)	
No	90 (65.2 %)	

Results expressed as mean ± standard deviation

**Table 2:** Vaccines status and COVID-19 related symptoms in 48 bariatric patients experiencing COVID-19 vaccine breakthrough.

Vaccination status	Patients
1 dose	3 (6.25 %)
2 doses	19 (39.6 %)
3 doses	26 (54.15 %)
<b>Symptoms in 45 patients with complete vaccination course</b>	
No	14 (31.1 %)
Yes*	31 (68.9 %)
Headache	26
Flu	24
Gastrointestinal disorders	9
Asthenia	27
Dyspnea	8
Fewer	16
Ageusia	12
Anosmia	10
<b>Hospitalization in 31 symptomatic COVID19 patients</b>	
No	24 (77.4 %)
Yes*	7 (22.6 %)

\* One or more symptoms occurred simultaneously in the same patient

**Table 3:** Comparison between 45 COVID-19 bariatric patients with complete vaccination status suffering vaccine breakthrough and 90 non COVID-19 bariatric patients

	COVID breakthrough n = 45	Non-COVID n = 90	p
<b>Sex</b>			
M	0	5	<b>X<sup>2</sup>=0.78; p=0.37</b>
F	45	85	
<b>Age</b>	47.11± 9.80	47.5 ± 9.44	P=0.8235
<b>BMI</b>	28.4 ± 6.24	30.3 ± 7.08	P=0.12
<b>Type of surgery</b>			
Malabsorptive	33	50	<b>X<sup>2</sup>=4.00; p=0.04</b>
Restrictive	12	40	
<b>Surgical approach</b>			
Open	10	8	<b>X<sup>2</sup>=4.61; p=0.03</b>
Laparoscopy	35	82	
<b>Timing of intervention</b>			
< 1 year	6	19	<b>X<sup>2</sup>=1.20; p=0.27</b>
1-5 years	22	41	<b>X<sup>2</sup>=0.13; p=0.71</b>
> 5 years	21	30	<b>X<sup>2</sup>=2.26; p=0.13</b>
<b>Weight loss</b>	51.9 ± 22.19	44.7 ± 16.03	P=0.03

Results expressed as mean ± standard deviation

**Table 4:** Comparison between 31 symptomatic COVID-19 bariatric patients with complete vaccination status according to the nature of the bariatric procedure.

	Malabsorptive 24	Restrictive 7	<i>p</i>
<b>Symptoms*</b>			
Headache	20 (83.3 %)	6 (87.7 %)	$X^2=0.02$ ; $p=0.88$
Flu	19 (79.2 %)	5 (71.4 %)	$X^2=0.18$ ; $p=0.66$
Gastrointestinal disorders	7 (29.2 %)	2 (28.6 %)	$X^2=0.0009$ ; $p=0.97$
Asthenia	21 (87.5 %)	6 (87.7 %)	$X^2=0.01$ ; $p=0.90$
Dyspnea	8 ( 33.3 %)	0	$X^2=0.95$ ; $p=0.32$
Fewer	13 (54.2 %)	3 (42.8 %)	$X^2=0.27$ ; $p=0.59$
Ageusia	12 (50 %)	0	$X^2=2.83$ ; $p=0.09$
Anosmia	10 (41.7 %)	0	$X^2=2.26$ ; $p=0.13$
<b>Hospitalization</b>	6 (25 %)	1 (14.3 %)	$X^2=0.35$ ; $p=0.55$

\* One or more symptoms occurred simultaneously in the same patient