Spirometry: Is it a reliable morbidity and mortality predictor in morbidly obese patients who undergo bariatric surgery?

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BACKGROUND

Morbid obesity (MO) marks a huge determinant for anesthetic management as well as an increase in surgical risk. Lung function tests are part of routine preoperative testing for patients who undergo bariatric surgery (BS), due to the association between MO and respiratory disorders which may be related with an increased risk of postoperative respiratory complications (PRC).

This study's main objective was to consider the validity of lung function test to predict the incidence of PRC after surgery.

METHODS

Clinical files of 178 patients who underwent BS between 2011 and 2015 were reviewed. They were classified according to the **Obesity Surgery Mortality Risk Score (OR-MRS)**, with A (0-1 risk factors) being low risk; B (2-3), moderate risk; and C (4-5), high risk.

FEV1, FVC and Tiffeneau Index (IT) were gathered from preoperative spirometry, and patients were classified in accordance with the **GOLD score** for COPD (stage I: mild; II: moderate; III: severe; IV: very severe).

Values for preoperative **pO2** and **pCO2** were also documented, as well as neck circumference and the presence of **Chronic Obstructive Pulmonary Disease (COPD)**, **asthma**, **Sleep Apnea Syndrome**, **smoking** and **CPAP** treatment. Lastly, respiratory complications 6 months and 1 year after surgery were registered.

RESULTS

Out of 178 patients (45 males and 133 females, with a mean CMI of 49.3 Kg/m²), 6 presented PRC (3 at 6 months, and 3 after 1 year), and there were 2 deaths unrelated to the PCR .

BIBLIOGRAPHY

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Table 1.

		POSTQX COMPLICATIONS			Total
		No	Yes	Deaths	
GOLD ≥ 1	No	160	1	1	162
	Yes	14	2	0	16
Total		174	3	1	178
p<0.05					

PPV = 0.125; NPV = 0.99

Patients with GOLD ≥ 1 were associated with an increased incidence of immediate complications, from **0.6%** to **12.5%** . There was no greater incidence of late complications in these patients.

Table 2.

		POSTQX COMPLICATIONS			Total
		No	Yes	Deaths	
IT<0.7	No	163	2	1	166
	Yes	11	1	0	12
Total		174	3	1	178
p>0.05					

PPV = 0.125; NPV = 0.99

Patients with IT <0.7 did not present an increase in immediate or late complications.

Table 3.

		POSTQX COMPLICATIONS			Total
		No	Yes	Deaths	
IMC ≥ 50	No	108	0	0	108
	Yes	66	3	1	70
Total		174	3	1	178
p<0.05					

A **4.3%** rise of immediate PRC was observed in patients with BMI ≥ 50 Kg/m².

CONCLUSIONS

- We concluded that **spirometry is not a good predictor of both immediate and late PRC.**
- Statistically significant differences were seen for prediction of immediate PRC, but only in patients with respiratory symptoms suggestive of COPD (GOLD ≥ 1) and for CMI ≥ 50kg/m² as an independent risk factor.