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BACKGROUND: Shortage of critical care resources and a low incidence of respiratory complications after laparoscopic gastric bypass (LGB) surgery in our institution prompted us in 2005 to change postoperative intensive care admission criteria for this patient population. Before 2005 all subjects with a body mass index (BMI) >50 kg/m², age >40 years and documented obstructive sleep apnea (OSA) were admitted to the intensive care unit (ICU). After January 2005 only patients with a BMI >60 kg/m², ASA classification greater than or equal to III and severe OSA were admitted. This retrospective study assesses the incidence of respiratory complications in patients undergoing LGB before and after implementation of the new criteria.

METHODS: Records of LGB patients between January 2004 and December 2005 were reviewed. Variables analyzed included demographic data (age, gender, BMI, ASA classification), OSA, use of home CPAP, length of stay in PACU, ICU and hospital, postoperative ventilation and hypoxemia (O₂ saturation <90%, O₂ administered through nasal prongs), and unplanned ICU admission. CHI² test followed by Fisher Exact test was used for statistical analysis.

RESULTS: 250 charts were analyzed (122 from 2004, 128 from 2005). Demographics were comparable between the two groups. Although OSA was more frequent in the 2004 than in the 2005 cohort (p=0.02), the incidence of OSA requiring home CPAP was comparable (p=0.47). Length of hospital stay was greater in 2004 than in 2005 (p=0.003). More Patients were admitted to the ICU in 2004 (p<0.001), but the average length of ICU stay was longer in 2005 (p=0.03). All unplanned ICU admissions were due to surgical anastomosis leak (7 patients in 2004 vs. 0 in 2005). Overall, the incidence of postoperative respiratory complications (hypoxemia, need for mechanical ventilation) was comparable in both groups. However, it was elevated in those patients admitted to the ICU in 2005.

	2004			2005		
	Total	ICU	PACU	Total	ICU	PACU
Number	122	70	52	128	13	115
Age (years)	38.0±8.5	39.9±8.1	35.3±8.5	37.7±9.0	36.5±9.1	37.6±9.1
BMI (kg/m ²)	51±10	54±11	48±6	53±10	65±11	52±9
ASA						
I	1 (1%)	0	1 (2%)	1 (1%)	0	1 (1%)
II	53 (43%)	28 (40%)	25 (48%)	58 (45%)	1 (8%)	57 (50%)
III	63 (52%)	38 (55%)	25 (48%)	64 (50%)	9 (64%)	55 (48%)
IV	5 (4%)	4 (6%)	1 (2%)	5 (4%)	3 (21)	2 (2%)
OSA	53 (44%)	37 (54%)	16 (32%)	32 (25%)	8 (62%)	24 (21%)
Home CPAP	15 (12%)	11 (16%)	4 (8%)	16 (12%)	2 (14%)	14 (12%)
Length of PACU stay (min)	-	-	167±61	-	-	156±69
Length of ICU stay (h)	-	24.4±19.3	-	-	55.6±122.4	-
Length of hospital stay (d)	4.1±7.6	4.7±8.9	3.4±5.7	2.6±2.9	2.6±1.1	2.5 ±3.0
Postoperative ventilation	1 (1%)	1 (1%)	0	2 (2%)	1 (8%)	1 (1%)
Postoperative hypoxemia	6 (5%)	2 (3%)	4 (8%)	3 (2%)	2 (14%)	1 (1%)
Unplanned ICU admission	7 (6%)	5 (7%)	2 (4%)	0 (0%)	0 (0%)	0 (0%)

DISCUSSION: Limiting ICU admission following LGB to patients with a BMI >60 kg/m², ASA classification greater than or equal to III and severe OSA does not increase overall postoperative respiratory complications, and hospital stay. Moreover, applying these ICU admission criteria actually improves the chances of identifying patients at high risk for postoperative ventilation, hypoxemia and decreases unplanned ICU admission.