Incidence of morbidities associated with the use of endotracheal intubation or ProSeal® in laparoscopic cholecystectomies

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Background and Goal of Study:

- Laparoscopic cholecystectomy is one of the most commonly performed surgical procedures, where tracheal intubation is recommended for airway management.
- Studies have suggested that laryngeal mask airway, such as ProSeal (PLMA®), may be a suitable alternative^[1,2].
- The aim of this study was to compare the incidence of postoperative morbidities using endotracheal tube (ETT) or PLMA® for airway management in patients undergoing laparoscopic cholecystectomy.

Methods:

- Prospective observational study in patients submitted to ambulatory laparoscopic cholecystectomy under general anesthesia with ETT or PLMA®.
- The surgical and anesthetic procedures were recorded, namely, airway device, airway device insertion attempts and complications, intraoperative drugs, anesthesia duration and a gastric distension score.
- Postoperatively, the patients were inquired about the presence of sore throat, dysphagia, dysphonia, laryngospasm or stridor, heartburn, postoperative nausea and vomiting (PONV) at 1, 2, 4 and 24 hours after the surgery.

Results:

- There weren't differences regarding age, body mass index (BMI), American Society of Anesthesiology physical state classification, Mallampati classification and duration of anesthesia between ETT and PLMA® groups.
- All the devices were inserted at first attempt and without complications.

Table 1 – Association between the different airway devices and postoperative morbidity

	ETT (n=22)	PLMA® (n=9)	P-value
Sore throat	7 (31,8%)	1 (11,1%)	0,379
Dysphagia	3 (13,6%)	0 (0%)	0,537
Dysphonia	9 (40,9%)	0 (0%)	0,032*
Heartburn	3 (13,6%)	0 (0%)	0,537
PONV	8 (36,4%)	1(11,1%)	0,220

- There were no cases of laryngospasm or stridor on both study groups.

Table 2 – Association between study groups and gastric distention

Gastric distension score	ETT (n=11)	PLMA® (n=9)	p-value
0-4	8 (72,7%)	6 (66,7%)	1.00
5-8	3 (27,3%)	3 (33,3%)	
9-10	0 (0%)	0 (0%)	

- Gastric distension score was similar on both groups.
- There were no cases of regurgitation and aspiration.

Table 3 – Association between dysphonia incidence and intraoperative dose of rocuronium.

Dysphonia	Rocuronium dosage (mg) Median (IQR;min-max)	p-value
Yes (n=9)	30 (40; 0-50)	0.031*
No (n=22)	40 (17.5; 0-75)	

IQR- Interquartile Range

- A lower dosage of rocuronium was administered to patients with dysphonia compared to those that didn't present this morbidity.

Table 4 – Association between dysphonia incidence and BMI

	Normal BMI (n=14)	Excessive BMI (n=17)	p-value
Dysphonia	7 (53.8%)	2 (11.8%)	0.044*

- The incidence of dysphonia was higher in patients normal body mass index.

Discussion:

- As in other studies we had no cases of regurgitation and aspiration^[3].
- Dysphonia was less frequent with PLMA®; we did not find this data reported in other studies.
- All other morbidities studied were similar with both airway devices.
- The degree of gastric distension was similar between groups, which is consistent with previous trials ^[1,2].

Conclusion:

- PLMA® seems to be a suitable and safe alternative to ETT in one-day laparoscopic cholecystectomies.
- PLMA® decreases the incidence of dysphonia compared to ETT.

1- Maltby, JR et al; Can J Anesth 2002; 47(7): 622-26
2- Saraswat, N et al; Indian Journal of Anaesthesia 2011,55(2):129-34
3- Sharma B, el al.; Indian Journal of Anaesthesia 2003,47(6):467-472.