

Comparing the Effectiveness of Ambu[®] AuraGain[™] Laryngeal Mask Airway with LMA[®] ProSeal[™] in Patients undergoing Laparoscopic Surgeries- A Randomised Clinical Trial

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ABSTRACT

Introduction: Second generation Supraglottic Airway Devices (SADs) contain a gastric drain tube which separates the respiratory and the alimentary tract. This provides a better oropharyngeal seal and reduces the risk of pulmonary aspiration of refluxed gastric contents compared to the first generation SADs.

Aim: To compare Ambu[®] AuraGain[™] (AAU) laryngeal mask airway with LMA[®] ProSeal[™] (PLMA) in terms of Oropharyngeal Leak Pressure (OLP) in laparoscopic surgeries.

Materials and Methods: This randomised clinical study was conducted from December 2017-September 2019, at Shri Dharmasthala Manjunatheshwara College of Medical Sciences and Hospital, Dharwad, India in 80 patients, aged 18-65 years, of American Society of Anaesthesiologists (ASA) physical status I and II undergoing laparoscopic surgeries. Patients were randomly assigned to one of the two groups: group PLMA and group AAU. After induction of anaesthesia, SADs were inserted by an experienced anaesthesiologist. OLP, pharyngeal mucosal pressure, peak airway pressure and secondary outcome parameters (the number of attempts, time required, ease, and haemodynamic response associated with insertion of LMA) were

recorded at set time points. Data was analysed using Statistical Packages for Social Sciences (SPSS) version 22.

Results: All patients in both the groups were comparable in terms of demographic data and baseline vital parameters. The Oropharyngeal Leak Pressure of group AAU was comparable to group PLMA at all measured time-points. The two groups were comparable in terms of pharyngeal mucosal pressure immediately after insertion of LMA, but group AAU had lesser pharyngeal mucosal pressure compared to group PLMA immediately after pneumoperitoneum, at 30 and 60 minutes. Mean peak airway pressures were lower in group AAU than group PLMA immediately after insertion of LMA (15.53 ± 1.50 versus 17.06 ± 2.56 cmH₂O, $p=0.004$) and immediately after creation of pneumoperitoneum (23.03 ± 2.96 versus 26.58 ± 10.12 cmH₂O, $p=0.04$). Both the groups were comparable in terms of number of attempts, time taken, haemodynamic response associated with LMA insertion and with passage of gastric tube except that PLMA was easier to insert in the first attempt compared to AAU (26/40 versus 13/40, Grade 1 ease of insertion).

Conclusion: Ambu[®] AuraGain[™] could be a useful alternative to LMA[®] ProSeal[™] in patients undergoing laparoscopic surgeries.

Keywords: Airway pressure, Oropharyngeal leak pressure, Pharyngeal mucosal pressure, Supraglottic airway devices