Prospective comparison of Ambu laryngeal mask and LMA-Classic in patients with immobilized cervical spine

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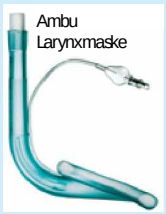
Background and goal of study:

LMA-Classic (LMC, LMA Company) and the single-use Ambu Laryngeal Mask (ALM, Ambu) are compared for ventilation in patients with simulated impaired cervical spine mobility.

Ease of insertion and quality of airway seal are assessed in a prospective clinical trial.

Materials and Methods:



After approval of the local ethics committee and written consent, 60 patients scheduled for elective ambulatory interventions were randomized to be ventilated with either LMC or ALM.

Following standardized induction of general anaesthesia with fentanyl and propofol and immobilization of the cervical spine with an extrication collar (Ambu Perfit ACE), direct laryngoscopy was performed and view was graded using the Cormack and Lehane classification.

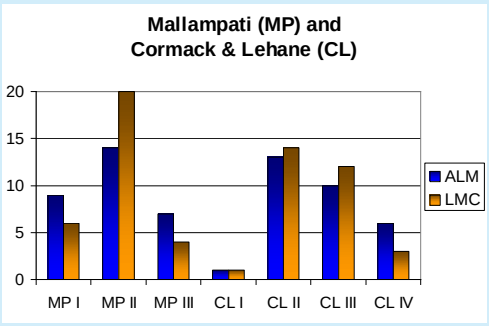
Airway devices were placed according to manufacturer´s instructions. Number of attempts (maximum 2), time until first tidal volume and intraoperative tidal volumes (goal: $etCO_2$ of 35 mmHg) were recorded. Airway leak pressure was measured with cuff pressures adjusted to 60 cmH_2O.

Devices were inspected for traces of blood after removal. Patients were questioned for postoperative complaints.

Results and Discussions:

	ALM	LMC
m/f	12/18	15/15
BMI (kg m^{-2})	25.8 ± 4.8	26.2 ± 2.8
ASA I/II	16/14	16/14
Size 4/5	14/16	12/18

30 patients were ventilated with ALM or LMC. Demographic data as well as BMI, baseline heart rate, blood pressure and peripheral oxygen saturation were comparable for both groups.



Insertion was successful in all patients (first attempt LMC 30, ALM 28). Time until first tidal volume for ALM and LMC was 15.6±4.4 and 15.5±4.9 seconds. Tidal volumes were 8.1 and 8.0 ml kg^{-1} for ALM and LMC with resulting peak airway pressures of 14.5 and 14.1 cmH_2O. Airway leak pressures were comparably high: 25.6±5.2 cmH_2O for ALM and 26.5±6.5 cmH_2O for LMC.

Traces of blood were found in 6 devices in the LMC group and in 3 devices in the ALM group. Mild complaints (soar throat, VAS 2 on a scale of 1 to 10) were stated in the recovery room and after 24 hours by 2 patients in the LMC group and 1 patient in the ALM group.

Conclusions:

In patients with reduced cervical spine mobility simulated by an extrication collar, a patent airway can be established rapidly with both LMA-Classic and Ambu laryngeal mask. Ventilation parameters, success rates and airway seal are comparable, postoperative complaints are infrequent.

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