Use of manometry to limit cuff pressure in patients receiving airway management with the LMA® Classic™ Airway reduced post-operative pharyngolaryngeal complications by 70%.

The routine use of manometry to limit intracuff pressure represents a clear opportunity to improve patient safety.

Objective
- To compare the rate of pharyngolaryngeal complications in patients who received the LMA® Classic™ Airway for airway management with and without manometry to limit intracuff pressure.

Methods
- This was a prospective, randomized study that included patients scheduled to undergo short-duration, elective ambulatory surgery that involved general anesthesia (without the use of nitrous oxide).
- The study included patients aged 18−80 years and American Society of Anesthesiologists physical status 1–3.
- Airway management was administered to all patients using the LMA® Classic™ Airway.
- The LMA® Classic™ Airway was inserted by experienced anesthesiologists according to their preferred technique and guided by the manufacturer’s instructions.
- Following correct placement of the device, the cuff was inflated using a syringe until an audible seal was achieved.
- Once spontaneous breathing was established, intracuff pressure was measured using a hand held manometer.
- In the pressure-limiting group, intracuff pressure was reduced to between 54 and 60 cm H2O if it was found to exceed 60 cm H2O.
- In the routine care group, intracuff pressure was left unchanged.
- The primary outcome of interest was the incidence of a composite of pharyngolaryngeal adverse events (i.e., any combination of sore throat, dysphonia or dysphagia at 1, 2 or 24 hours post-surgery).

Results
- Of the 203 patients recruited, 200 were included in the analyses (pressure-limiting group, n=97; routine care group, n=103).
- The baseline and demographic characteristics of patients in the two groups were comparable.
- The mean age and body weight of patients was 45–47 years and 80–84 kg, respectively.
- Cuff pressure immediately after insertion and after adjustment (in the pressure-limiting group) is shown in Table 1.
- The rate of post-operative pharyngolaryngeal adverse events was significantly (p<0.001) lower in the pressure-limiting group than in the routine care group (Figure 1).
- Use of a manometer to reduce cuff pressure in the pressure-limiting group reduced pharyngolaryngeal complications by 70%.


Use of manometry for laryngeal mask airway reduces postoperative pharyngolaryngeal adverse events: a prospective, randomized trial.

<table>
<thead>
<tr>
<th>CUFF PRESSURE (CM H2O)</th>
<th>PRESSURE-LIMITING GROUP (N=97)</th>
<th>ROUTINE CARE GROUP (N=103)</th>
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</thead>
<tbody>
<tr>
<td>Following insertion</td>
<td>152 ± 80</td>
<td>155 ± 78</td>
</tr>
<tr>
<td>Following adjustment†</td>
<td>54 ± 8*</td>
<td>155 ± 78</td>
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</tbody>
</table>

* p<0.001 vs. routine care
† In the pressure-limiting group, intracuff pressure was reduced to 54–60 cm H2O if it was found to be >60 cm H2O; in the routine care group, intracuff pressure was left unchanged.

Table 1. Cuff pressure following insertion of the LMA® Classic™ Airway and following adjustment (if undertaken) (data shown as mean ± standard deviation)
Figure 1. Rate of all pharyngolaryngeal adverse events† with the LMA® Classic™ Airway according to whether high intracuff pressures were reduced (pressure-limiting group) or left unchanged (routine care group)

- The rate of individual pharyngolaryngeal complications at 1, 2 and 24 hours post-surgery is shown in Figures 2
- The were no reports of nerve injuries during the course of the study
- There was no between-group difference in patient satisfaction

Conclusion
- Use of a manometer to limit cuff pressure in patients receiving airway management with the LMA® Classic™ Airway led to a 70% reduction in the rate of post-operative pharyngolaryngeal adverse events
- The authors strongly recommended that “the routine use of manometry after LMA insertions be established as a best practice” and that cuff pressures be deflated to less than 60 cm H₂O
- Routinely using manometry to limit intracuff pressure “represents a clear opportunity for significant improvements in patient safety and reducing pharyngolaryngeal adverse events”

Figure 2. Rate of individual pharyngolaryngeal adverse events over time with the LMA® Classic™ Airway according to whether high intracuff pressures were reduced (pressure-limiting group) or left unchanged (routine care group)

- • The rate of individual pharyngolaryngeal complications at 1, 2 and 24 hours post-surgery is shown in Figures 2
- • The were no reports of nerve injuries during the course of the study
- • There was no between-group difference in patient satisfaction

* p<0.001 vs. routine care
† Includes any combination of sore throat, dysphonia or dysphagia at 1, 2 or 24 hours post-surgery

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