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## SCIENTIFIC ARTICLE

# Impact of the practising anesthesiologist team member on the laryngeal mask cuff pressures and adverse event rate<sup>☆</sup>

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### KEYWORDS

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### Abstract

**Objective:** We have planned to evaluate the laryngeal mask cuff pressures (LMcp) inflated by anesthesia workers of several seniority, without using manometer.

**Methods:** 180 patients scheduled to have short duration surgery with laryngeal mask were included in the study. Five anesthesia specialists (Group S), 10 residents (Group R) and 6 technicians (Group T) inflated the LM; thereafter LMcp were measured with pressure manometer. Participants have repeated this practice in at least five different cases. LMcp higher than 60 cm H<sub>2</sub>O at the initial placement or intraoperative period were adjusted to normal range. Sore throat was questioned postoperatively. Groups were compared in terms of mean LMcp and occupational experience.

**Results:** At the settlement of LM, LMcp pressures within the normal range were determined in 26 (14.4%) cases. Mean LMcp after LM placement in Group S, R and T were 101.2 ± 14.0, 104.3 ± 20.5 cm H<sub>2</sub>O and 105.2 ± 18.4 cm H<sub>2</sub>O respectively ( $p > 0.05$ ). Mean LMcp values in all measurement time periods within the groups were above the normal limit (60 cm H<sub>2</sub>O). When groups were compared in terms of LMcp, no difference has been found among pressure values. Occupational experience was 14.2 ± 3.9; 3.3 ± 1.1 and 6.6 ± 3.8 years for specialists, residents and technicians respectively and measured pressure values were not different in regard of occupational experience. Seven (3.9%) patients had sore throat at the 24th hour interview.

**Conclusion:** Considering lower possibility of normal adjustment of LMcp and ineffectiveness of occupational experience to obtain normal pressure values, it is suitable that all anesthesia practitioners should adjust LMcp with manometer.

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**PALAVRAS-CHAVE**

Máscara laríngea;  
Pressão;  
Anestesia

## Impacto do anestesiologista em treinamento sobre as pressões do manguito de máscara laríngea e incidência de eventos adversos

**Resumo**

**Objetivo:** Planejamos avaliar as pressões do manguito de máscara laríngea (PMML) inflado por profissionais da área de anestesiologia com tempos de serviço variados, sem o uso de manômetro.

**Métodos:** Cento e oitenta pacientes agendados para cirurgia de curta duração com máscara laríngea foram incluídos no estudo. Cinco especialistas em anestesia (Grupo E), 10 residentes (Grupo R) e seis técnicos (Grupo T) inflaram os manguitos das máscaras laríngeas; subsequentemente, as PMML foram medidas com manômetro de pressão. Os participantes repetiram essa prática em pelo menos cinco casos diferentes. As PMML superiores a 60 cm H<sub>2</sub>O na colocação inicial ou no intraoperatório foram ajustadas para valores normais. Os pacientes foram questionados sobre a presença de dor de garganta no período pós-operatório. Os grupos foram comparados quanto à média das PMML e experiência profissional.

**Resultados:** Ao inserirem a ML, as pressões do manguito dentro da faixa normal foram determinadas em 26 (14,4%) casos. As médias das PMML após a inserção da ML pelos grupos E, R e T foram 101,2 ± 14,0, 104,3 ± 20,5 cm e 105,2 ± 18,4 cm H<sub>2</sub>O, respectivamente, ( $p > 0,05$ ). A média dos valores das PMML em todos os períodos de mensuração entre os grupos estava acima do limite normal (60 cm H<sub>2</sub>O). Quando os grupos foram comparados quanto às PMML, nenhuma diferença foi encontrada entre os valores das pressões. A experiência profissional era de 14,2 ± 3,9; 3,3 ± 1,1 e 6,6 ± 3,8 anos para especialistas, residentes e técnicos, respectivamente, e os valores das pressões mensuradas não foram diferentes em relação à experiência profissional. Sete pacientes (3,9%) apresentaram dor de garganta durante a entrevista realizada na 24<sup>a</sup> hora.

**Conclusão:** Levando-se em consideração uma possibilidade menor de ajuste da pressão do manguito da máscara laríngea (PMML) e da ineficácia da experiência profissional para a obtenção de valores normais das pressões, é adequado que todos os profissionais de anestesia ajustem as PMML com manômetro.

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**Introduction**

Laryngeal mask (LM) has become one of the cornerstones of airway management after its introduction into clinical practise more than 20 years ago. Originally it had been recommended as an alternative for face mask but upon growing experience but now it has a definite role in routine anesthesia care since then. Today, as an alternative airway device it has a worldwide acceptance and it is assumed that more than 200 million patients had anesthesia with LM.<sup>1</sup>

LM has a well defined role in American Society of Anesthesiologists (ASA) difficult airway algorithm and it has even gained a place in prehospital care, in the resuscitation of cardiopulmonary arrest victims.<sup>2,3</sup>

Health care providers other than anesthesiologists use LM especially for emergency airway care in an increasing trend.<sup>4-6</sup> On the other hand, although rare, serious adverse events such as nerve injuries have been reported in the literature associated with pressure neuropraxia while using LM.<sup>7-10</sup> Pharyngolaryngeal adverse events are more common after LM use, but as recently have been demonstrated, the incidence of them can be reduced by adjusting laryngeal mask cuff pressure (LMcp) appropriately.<sup>7</sup> It can be expected that pharyngolaryngeal adverse event rate due to LMcp, can be lower when the experience of practitioner increases. However, influence of anesthesiologist's seniority

and experience on LMcp has not been studied before. We have hypothesized that increasing experience in anesthesia practise would achieve correct LMcp determination, and reduce the incidence of one of the common LM associated side effect, sore throat rate. In order to test this hypothesis, we have measured LMcp after inflation of the laryngeal mask cuff (LMc) by anesthesia team workers of varying seniority. Primary outcome variable was initial LMcp; secondary outcome variable was determined as sore throat rate after the operation.

**Methods**

After approval of the hospital ethics committee and obtaining patients' informed consents, 180 adult patients scheduled for short-duration elective surgeries under general anesthesia were enrolled in the study. All the patients were aged between 18 and 70 years, in the ASA I-III risk group. Exclusion criteria have involved patients with the histories of full stomach, recent upper/lower respiratory tract infection, morbid obesity (BMI > 40 kg/m<sup>2</sup>), hiatus hernia and gastroesophageal reflux.

Before the administration of the general anesthetic, patients were randomly allocated using a random samples table into three groups according to LM practitioner: anesthesia specialist (Group S,  $n = 5$ ), anesthesia resident (Group

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