

INTERNATIONAL TRAUMA LIFE SUPPORT

UTILIZATION OF THE “LEON CRITERIA” TO PREDICT DIFFICULT INTUBATION

The guidelines and references contained in this document are current as of the date of publication and in no way replace physician medical oversight.

INTRODUCTION

The purpose of this document is to update ITLS instructors and providers regarding use of a mnemonic, the LEON criteria, to predict a difficult airway when considering laryngoscopy.

BACKGROUND

Emergency intubation is a lifesaving procedure performed on critically ill or injured patients in the prehospital and emergency department settings. Performing this procedure on patients with a limited physiologic reserve and in an uncontrolled setting increases the difficulty. Evidence has demonstrated repeated intubation attempts increases the risk of adverse events. Therefore, it is crucial to have a systematic approach prior to emergency laryngoscopy¹.

CONSIDERATIONS

Mnemonics such as MMAP (Mallampati, Measurement, Atlanto-Occipital extension, Pathology) and LEMON (Look, Evaluate 3-3-2, Mallampati, Obstruction/Obesity, Neck mobility) have utilized certain physical features upon assessment to use as a clinical decision tool to help predict which patients may have difficult laryngoscopy. However, the Mallampati score is difficult to assess, often not feasible, and an unreliable predictor of a difficult airway².

A multi-center prospective observational study of 3,300 patients validated the modified LEMON, or LEON, criteria, removing the Mallampati score from the assessment, as a reliable clinical tool to predict difficult direct laryngoscopy (85% sensitivity) and video laryngoscopy (95% sensitivity). Additionally, the negative predictive value – the score correct in indicating a lack of difficulty in a patient’s intubation – for both direct and video laryngoscopy was 98% to 99%³.



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RECOMMENDATIONS

Utilization of the LEON criteria, which eliminates the use of the Mallampati assessment, is a reliable, reproducible and accurate clinical decision tool when assessing critically injured patients requiring an advanced airway.

MEDICAL OVERSIGHT

Medical oversight should review current literature and develop prehospital EMS protocols in regard to the appropriate use of LEON for difficult airway assessment. Quality Assurance should be utilized to monitor its appropriate use.

CONCLUSION

It is the position of ITLS recommending the use of LEON as the clinical decision tool for difficult airway assessment.

REFERENCES

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2. Reed MJ. Can an Airway Assessment Score Predict Difficulty at Intubation in the Emergency Department? *Emerg Med J* 2005; 22:99-102.
3. Y. Hagiwara et al. Prospective Validation of the Modified LEMON Criteria to Predict Difficult Intubation in the ED. *American Journal of Emergency Medicine* 2015; 33:1492–1496.



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Current Thinking

Utilization of the “LEON Criteria” to Predict Difficult Intubation

International Trauma Life Support

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Abstract

This is the current thinking of International Trauma Life Support (ITLS) with regard to the usefulness of LEON criteria to assess a trauma patient’s airway and predict difficult intubation in the prehospital setting.

MMAP and LEMON have been well recognized tools in which Mallampati scoring is required. However, the Mallampati score is difficult to assess, often not feasible, and an unreliable predictor of a difficult airway².

Current Thinking

It is the position of International Trauma Life Support that:

1. There is sufficient evidence to support the use of the LEON criteria in the prehospital assessment of the airway in a trauma patient.



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