**Unique™ Laryngeal Mask airway versus Cobra™ Perilaryngeal airway: Learning curves for insertion**

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**Introduction**
Both the Unique™ LMA, and lately the Cobra™ PLA, is available in most of the larger state hospitals in South Africa. This study’s objective is to evaluate and compare the learning curves for insertion of these two single-use airway devices. This is to ascertain which of these two devices is easier and safer to insert, in the shortest possible training time, for junior doctors.

**Methods**
100 patients scheduled for elective minor surgery were randomised into 2 groups, those receiving the Unique™ LMA (U) and those receiving the Cobra™ PLA (C). Only patients where management of anaesthesia would have included the use of a supraglottic airway device were included in the study. Both groups received the same premedication, induction and maintenance of anaesthesia. Intern medical doctors that have never inserted either an LMA or a PLA were used to plot the learning curves for the two devices. Ten doctors were used and randomly allocated to either insert an LMA or a PLA in 10 patients. Factors plotted on the learning curves were:
1. number of attempts at placement
2. time to successful placement (from starting the placement procedure to adequate ETCO₂ on capnograph)
3. local trauma caused by insertion (dipping the device into set amount of water post-procedure and using a “dipstick” reading for blood)

**Results**
Total number of attempts of insertion with Group C was 1.20, compared to 1.06 for Group U.
Total average time for insertion with Group C was 58.3 seconds, compared to 47.6 seconds for Group U.
Total average trauma score for insertion with Group C was +1.60, compared to +1.36 for Group U.
Successful insertion was achieved faster with every attempt (number 1 through 10) with Group U.
However, it seems that none of the devices instil “memory” in the doctors that make subsequent insertions easier to perform, i.e. they didn’t perform later insertions significantly faster than the first attempt.

**Discussion**
It is clear that the Unique™ LMA was easier to insert for novice doctors, with less trauma caused and in a shorter time. However, neither of the devices had significantly reduced insertion times in subsequent attempts. Individual patient characteristics probably play a more important role as a cause of this outcome, rather than incompetence on the doctors’ part or substandard devices.

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**Spectral entropy and haemodynamic response to surgery during sevoflurane anaesthesia**

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**Introduction**
Apart from somatic responses, surgery also evokes autonomic responses, including haemodynamic responses. Spectral entropy has been validated as a means to monitor the hypnotic state during sevoflurane anaesthesia.

**Aim**
To investigate the relationship between spectral entropy, heart rate, and blood pressure during sevoflurane anaesthesia.

**Patients and methods**
The sample consisted of 43 patients scheduled for elective abdominal surgery. Patients were premedicated with oral midazolam. Induction of anaesthesia was achieved with alfentanil 15 mg/kg, vecuronium 0.1 mg/kg, lignocaine 1.5 mg/kg, and propofol 2 mg/kg. End-tidal sevoflurane was increased in 1% increments up to 3% after which it was adjusted to maintain state entropy (SE) < 60. When surgery neared completion, the sevoflurane concentration was again decreased. Response (RE),
SE and RE-SE difference (RE-SE), heart rate, and blood pressure were recorded before induction of anaesthesia and immediately after the target ET sevoflurane concentrations. The ratios of blood pressure and heart rate at the different times were calculated relative to the preoperative values. For the haemodynamic variables, ratios of < 0.85 or > 1.15 were regarded as clinically significant.

**Results**
There was a significant change in RE (p < 0.0001), SE (p < 0.0001) and RE-SE (p = 0.0006) at the different sevoflurane concentrations. No RE-SE > 10 was recorded at sevoflurane more than 1%. No SE > 60 was recorded at a sevoflurane concentration of 3%. No correlation was found between entropy and haemodynamic ratios.

**Conclusion**
The main findings of this study was that an end-tidal sevoflurane concentration of > 2% rendered unconsciousness in all patients (SE less than 60, RE-SE less than 10). The depth of anaesthesia did not guarantee absence of haemodynamic response to noxious stimuli.

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**A Clinical Comparison of Disposable Airway Devices**

CS Strydom, PJ le Roux

The re-usable Classic laryngeal mask airway (LMA®) is widely used. There are concerns regarding the transmission of pathogens. Disposable masks provide a cost-effective alternative. We performed a side-by-side clinical comparison of these devices applicable to the South African context.

**Methods**
Adult ASA 1-3 patients (30-100 kg) presenting for elective peripheral surgery in Tygerberg Hospital were randomized by drawing of sealed envelopes, to receive the gold standard Classic LMA, or one of 4 disposable devices. They all received a standardized anaesthetic with propofol, fentanyl and isoflurane in 40% O₂/N₂O. Insertion technique, mask sizes and maximum cuff volumes were per manufacturers instructions. The cuff was inflated to achieve an adequate airway seal (no audible leak at an airway pressure of 20cmH₂O), or to the maximum recommended volume. Cuff and airway pressures were measured continuously. A protocol was followed for repeated or failed attempts.

**Results**
To date, 29 of the proposed 130 patients were recruited. Data was analysed using one-way ANOVA.

The patients were of comparable age, weight, ASA grade and airway grading.

There were no statistical differences in the number of size changes (p=0.508), ease of insertion (p=0.152), insertion time (p=0.908) or insertion attempts (p=0.127). Cuff volumes (p=0.206) and cuff pressure (p=0.083) were similar. Airway trauma as graded by visible blood on the device was low, and similar between groups (p=0.688). There was no difference in the amount of suctioning required (p=0.237). Patient comfort was exceptional and comparable, achieving similar visual analogue scores for sore throat (p=0.875), dysphagia (p=0.846) and hoarseness (p=0.364). No complications were noted.

We found no difference in clinical practice between the Classic LMA®, Disposable LMA®, CobraPLA™, Portex Soft Seal Laryngeal Mask (PLA) and Ambu mask in terms of ease of insertion, patient comfort, airway trauma or adequacy of airway seal.

This is an ongoing study. Updated results will be presented.