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Equipment Monitoring

(Abstracts)

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Evaluation of Haemodynamic Impact of Video Laryngoscopy and Standard Laryngoscopy with Analgesia Nociceptive Monitoring

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Introduction: Standard laryngoscopy (SL) is often accompanied by a hemodynamic reaction with increased heart rate and blood pressure. Various anesthetic methods are used to mitigate this hemodynamic reaction. Among these, the use of video laryngoscope (VL) (1, 2).

The objective of our study was to analyze the hemodynamic repercussions of LS and LV during intubation using the analgesia monitor (ANI) which can predict the hemodynamic response associated with intubation of healthy adults.

Methods: Ethics approval was obtained from the local REB. This was a prospective observational study conducted in the operating room of a military hospital. Included were patients were ASA I and II Physical Status undergoing orotracheal intubation for any surgery procedures. Patients with difficult intubation and/or ventilation criteria were excluded. Patients were randomized into two groups: standard laryngoscopy group (Gr: LS) and video laryngoscope group (Gr: VL).

Monitoring is ensured by 5-electrode cardiovascular and non-invasive blood pressure measurement, before anesthetic induction, the analgesia nociceptive index (ANI) monitor was applied to each patient.

The anesthetic protocol (propofol 2,5mg/Kg, fentanyl 3µ/Kg and rocuronium 0,6mg/Kg) was standardized for two groups. Data collected for each patient included demographic characteristics, hemodynamic variables (HR, SBP, DBP) during laryngoscopy, intubation and 5 min after: the instantaneous and average data of the ANI at the time of laryngoscopy, intubation and 5min after. The conditions of intubation and other complications during the procedure were also noted.

Results: Eighty patients were included with 40 patients randomized to each group. There was no difference in the demographic characteristics of the two groups. Variations in ANI correlated with hemodynamic changes with good correlation (P <0.001) with instantaneous ANI after 5min 44,30±11,97 for LS group versus 55,77±7,62 for VL one ., the increase in HR after 5min (LS: 80,47±12,41/ VL:74,77±8,54) and SBP (LS :121,85±17,73 / VL :112,12±10,85) was more significant in the LS group compared to the VL group with (P = 0.049, P = 0.001) respectively.

Glottic visualization was better in the VL group (P=0.032).

Conclusion: The analgesia monitor (ANI) is used to predict the hemodynamic response associated with intubation. In fact, it is an original study with simple monitoring that can provide better condition of intubation without hemodynamic reactions especially for patients with heart disease or neurosurgical patient with ICHT. The video laryngoscope improves the hemodynamic conditions of intubation. The analgesia monitor (ANI) is used to predict the hemodynamic

response associated with intubation

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Muscle Relaxation and Endotracheal Intubation: Textbook or Evidence Based? (Relaxed Study)

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Background: Anaesthetists empirically perform endotracheal intubation (ETI) when the laryngeal muscles are supposed to be fully paralysed according to the pharmacodynamic and pharmacokinetic characteristics of the administered neuromuscular blockade drugs (NBDs) – this is the 'textbook' standard. However, given patients' variable sensitivity to NBDs, routine monitoring through a quantitative peripheral nerve stimulator (PNS) has been necessary (1) to ascertain that the muscles are adequately relaxed, i.e., the disappearance of train-of-four count (TOFC=0), before attempting ETI.

Aims: The primary aim is to determine the time needed after a standard dose of NBDs to reach an optimal level of muscle paralysis to facilitate intubation. The secondary aim is to establish a baseline prevalence of suboptimal ETI's in routine practice.

Methods: After local ethics approval, elective surgical adults undergoing general anaesthesia were screened, consent was obtained from those who received non-depolarising NBDs to facilitate their ETI's during induction.

A PNS (TOFscan, IDMED, France) was applied at the adductor pollicis just before anaesthesia.

The initial TOF stimulation was activated at the time of tracheal intubation. Both the intubating time and NBD dosage were at the attending Anaesthetist's discretion, and were more or less based on 'textbook', i.e., 1.5minutes after Rocuronium was administered at a dose of 0.6mg/kg of ideal body weight (IBW), 3minutes after Atracurium 0.5mg/kg of total body weight (TBW). From this time onwards, auto-TOF repeated every minute. Once TOFC was "0", the study was completed.

All the time-points with TOF ratios (TOFR) and TOFC were recorded and analysed. The values were averaged with a 95% confidence interval (CI).

Results: Two most commonly used non-depolarising NBDs, Atracurium and Rocuronium, were evaluated in this study. Data from 62 patients (47 Rocuronium and 15 Atracurium) were analysed.

The results indicated that, in practice, Rocuronium dosage 0.7mg/kg IBW (95%CI 0.69 to 0.80) was relatively larger than the standard, and also, time to perform ETI was over 2minutes (95%CI 2.0 to 2.5) rather than the standard 1.5minutes. Despite these factors, 81% of ETI's

were performed with suboptimal muscle relaxation, with an average TOFR at ETI being 40% (95%CI 27% to 53%).

Atracurium's dosage and time to ETI were in line with the 'textbook', 0.5mg/kg ABW (95%CI 0.50 to 0.56) and 3minutes (95%CI 2.7 to 3.3) respectively, but none of the ETI's was performed at optimal condition with the average TOFR at ETI being 72% (95%CI 51% to 93%).

Rocuronium took a shorter period than Atracurium, 5 (95%CI 4.3 to 6.2) versus 7minutes (95%CI 5.5 to 8.3) to produce optimal intubation condition, i.e., TOFC=0.

Conclusions: In conclusion, the time needed for both Rocuronium and Atracurium to produce optimal intubation condition after a standard induction dose is much longer than 'textbook' proposed. Suboptimal ETI's were prevalent in routine anaesthetic practice.

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