Nasal RAM cannulae for breathing support and inhalation anaesthesia in infants during videolaryngoscopy.

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Background and Goal of Study: The safe anaesthesia for direct laryngoscopy must provide sufficient oxygen and ventilation support with no collision with otolaryngologist. On the other hand induction of anaesthesia with 100% oxygen results in the development of atelectasis within minutes of anaesthetic administration. The use of continuous positive airway pressure (CPAP) during induction may be advantageous - provides a longer duration of apnoea before arterial desaturation occurs, especially in patients with respiratory problems [1]. CPAP is widely used in neonates with obstructive apnea, respiratory distress syndrome, chronic lung disease. The RAM device, invented for nasal ventilation support [2] can be attached to an anesthesia machine and provide both CPAP, and delivery of sevoflurane.

Materials and Methods: Direct videolaryngoscopy was undertaken in 5 infants and 1 child with stridor or unsuccessful extubation. Patients were anesthetized with a combination of sevoflurane in air/oxygen and boluses of i.v. propofol. For maintenance of anesthesia and ventilation assistance sevoflurane (1,0-1,5 MAC) was delivered through the RAM cannulae attached to the Mapelson D circuit. Standard monitoring including ECG, SpO₂ and NIBP were used. Nasal CPAP technique was tried, manual breaths given when required.

Results and Discussion: Patients with weight from 3,0 to 8,0 kg were successfully anesthetized with inhalation of sevoflurane through RAM cannulae, only 2 required i.v. doses of propofol. Paracetamol and fentanyl (0,5 mcg/kg) were used for analgesia. In one case i.v. lidocaine was also administered. There was an efficient anaesthesia level and proper gas exchange during procedures. Two out of 3 intubated patients could be extubated and remained on nasal CPAP afterwards. This kind of delivery of anaesthetic mixture was very practical in an opinion of otolaryngologists.

Conclusion: The use of RAM nasal cannulae is useful for gas delivery and sevoflurane anesthesia delivery during videolaryngoscopy in infants.

Literature:

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