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Double Nebulisation for Airway Anaesthesia

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Dear Editor,

The introduction of awake fibre-optic intubation has been a turning point in the management of anticipated difficult airway. Proper preparation and topicalisation of the airway is the key to a successful, smooth awake intubation. Various methods have been described to provide local anaesthesia of the airway and render it non-responsive to the easy passage of a fibrescope; nebulisation with lignocaine is one of them. The advantages of this method are that it is easy, safe, noninvasive, comfortable and acceptable to the patient; no landmarks need to be identified; coughing is absent or minimal and no airway manipulation is required. It can also be used in the paediatric population. On the other hand, topicalisation techniques that involve manipulation of the airway are often associated with haemodynamic fluctuations as well as coughing and gagging, which may be undesirable in patients with coronary artery and cerebrovascular diseases, raised intracranial or intraocular pressure, open eye injury and unstable cervical spine injury.

Good intubating conditions and patient satisfaction have been reported with the use of nebulised lignocaine (1, 2). However, the main drawbacks of this method are that it is time-consuming and the airway analgesia provided may be incomplete, requiring further supplementation with local anaesthetics by gargling, use of nerve blocks or SAYGO (spray as you go) through the working channel of the fibre-optic bronchoscope (3, 4).

In order to overcome the inadequate anaesthesia provided by single nebulisation, we hypothesised that nebulisation of the airway with 4 mL of 4% lignocaine done twice in succession should provide a well-topicalised airway and obviate the need for further topical instillation of local anaesthetics or nerve blocks. Parkes et al. (5) obtained plasma concentrations of 0.29–0.45 mg L^{-1} after providing inhalation anaesthesia with 6 mg/kg 10% lignocaine solution, which is well below the generally accepted safe level of 5 mg L^{-1}. Various other studies have reported that nebulisation of 4–6 mL of 2%–4% lignocaine should be safe in most patients (4). Using our technique, 320 mg of lignocaine is administered, of which a considerable amount is wasted during nebulisation; thus, the dose is well below the maximum dose recommended by the British Thoracic society for flexible fibre-optic intubation, making lignocaine toxicity highly unlikely (6).

Working in a tertiary care centre, we have been practising this technique frequently in patients with difficult airway requiring fibre-optic intubation and have been achieving good results. The first nebulisation may be commenced in the preoperative suit, with the second round of nebulisation being completed while monitors, among other equipment, are being attached in the operation theatre in order to prevent time wastage in the operation suite. The second nebulisation serves to intensify the density of the initially achieved nebulisation, after which the patient is ready to be intubated, thus eventually shortening the time to intubation, with no/minimal patient discomfort, and providing a well-prepared airway. Based on our experience, we recommend the use of lignocaine nebulisation done twice in succession as a method of airway preparation for awake fibre-optic intubation. However, further prospective randomised studies are needed to confirm our results.

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