

Difficult Intubation: Moving Away from Conventional Anesthesia in Difficult Airway

Editorial

Javid MJ*

Department of Anesthesiology and Critical Care, Tehran University of Medical Sciences, Iran.

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Despite outstanding improvement of pharmaceuticals and advanced instrumental technology, difficult airway and awake intubation is still a dilemma.

Encountering a patient with a predicted critical airway is usually suggestive of unpleasant experience of an undersedated or oversedated patient and a challenging attempt to achieve a patent airway by the anesthetist.

Inappropriate sedation is a common event in the scenario of awake intubation and is actually accompanied by unpleasant experience of the patient which is the most important cause of patient refusal for subsequent trials for awake intubation.

Prevention of morbidity and mortality in patients with predicted difficult airway, relies on providing a safe and secure anesthesia by maintaining spontaneous ventilation and prevention of oversedation.

Inability to provide an appropriate sedation is among various causes of underused awake fiberoptic intubation (AFOI) in UK [1]. Achieving a balance between undersedation and oversedation is a real challenge with conventional anesthesia methods.

Different anesthetics used for sedation in difficult airway showed the potential to produce fatal respiratory depression or airway collapse.

The disadvantage of midazolam as a common sedative agent and Propofol as a commonly used hypnotic agent in awake intubation is the low safety margin and the likelihood of disastrous nonreversible respiratory depression or apnea [1].

Remifentanyl, a potent μ opioid receptor agonist, is commonly used in conjunction with other agents such as Midazolam and more recently Propofol but regarding its numerous side effects such as bradycardia, hypotension, apnea, hypoxia, and chest wall rigidity it won't be a desirable choice [2].

Dexmedetomidine is an imidazole compound with specific Alpha-2 adrenoceptor agonist activity. It is gaining popularity as a sedative agent for AFOI (awake fiberoptic intubation) because of a number of favorable properties. In addition to sedation, it also provides anterograde amnesia, anxiolysis, and analgesia. It also has minimal effects on respiration [3].

Despite these desirable characteristics, Stacy Watt et al., found the same effect of Dexmedetomidine and Propofol on airway collapse and there are no well-designed randomized controlled trials demonstrating any clear benefit over other agents [4].

On the other hand, hemodynamic side effects of Dexmedetomidine (including hypotension, bradycardia, peripheral vasoconstriction, and decreased cardiac output), and conduction blocks reported especially in patients with conductive abnormalities [5] may restrict its clinical use.

What we need for a peaceful and straightforward awake intubation is the capability to achieve an anesthesia method with no respiratory depression, no hemodynamic instability, an appropriate patient tolerance and amnesia.

Ketamine is an old anesthetic with new indications to use. It has been used as oral, rectal, intravenous, intramuscular, intranasal, intradermal and subcutaneous injection.

***Corresponding Author:**

Mihan J. Javid, MD,
Department of Anesthesiology and Critical Care, Tehran University of Medical Sciences, Iran.
Tel: +989121216524
E-mail: mihanjavid@yahoo.com

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Recently, low dose ketamine is increasingly used in anesthesia, analgesia and pain management in pediatrics and adults [6, 7].

Subcutaneous Dissociative Conscious sedation (sDCS) is a recently introduced method of sedation with all desirable characteristics needed for a secure anesthesia in awake intubation and difficult airway management.

This method has been defined as using subcutaneous injection of low dose ketamine in conjunction with narcotics to achieve an acceptable level of sedation, pain relief and amnesia. Topical anesthesia of the tongue and oropharynx is part of this method in the case of awake intubation [8, 9].

Subcutaneous route of injection is an ignored route of injection in anesthesia management. Our experience with subcutaneous route of ketamine injection from 2011 until now [8-11] showed the preference of subcutaneous route compared to intravenous. Low complication rate and high efficacy of the drug while using subcutaneously is in favor of reviving an ignored route of injection in anesthesia management.

Subanesthetic doses of ketamine via subcutaneous injection, in combination with a narcotic, has been used for procedures as invasive as laparoscopic peritoneal dialysis catheter placement [10], and compromised airway management for mediastinal masses [9]. This method was described as a groundbreaking work in a review contributed by Edwin Marshall [12].

Neither of the ketamine or narcotics is efficient enough singly to provide desirable level of conscious sedation for laryngoscopy or tracheal intubation [9-11]. The keynote is the cumulative effect of ketamine on pain relieving effect of narcotics and reciprocal effect of narcotics. Outstanding analgesic and amnestic effects of ketamine, and its stimulant effect on respiration especially in the presence of increased end tidal CO_2 are behind the appropriate situation existing during the laryngoscopy and tracheal intubation [13, 14].

Subcutaneous Dissociative Conscious Sedation (sDCS) as a method with parallel desirable effects of anxiolysis, analgesia, amnesia,

spontaneous ventilation, patient cooperation and intact airway reflexes ensures an uneventful scenario of tracheal intubation (failed or successful) in a real situation of difficult intubation and ventilation.

Then the concept of “peaceful awake intubation” is not a pipe dream anymore.

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