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Research Article

INVASIVE PROCEDURES FOR MODERATE SEDATION IN INDIAN SCENARIO

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A R T I C L E I N F O

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A B S T R A C T

Aim: To review about concept of invasive procedure of moderate sedation in Indian scenario.
Objective: To know about different routes of invasive procedure involved in administering moderate sedation in Indian scenario.
Background: Moderate Sedation is a drug-induced depression of consciousness during which patients respond to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway. Invasive procedures are hazardous to children as the therapeutic margin between sedation and anesthesia is very narrow. It should be administered only under very special circumstances.
Reason: It helps in better handling of aggressive children in the dental chair and the also proves to be a safer method.

INTRODUCTION

Moderate sedation is a drug-induced depression of consciousness during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained [1]. They are number of routes of administration such asoral, intramuscular, intravenous, rectal, intranasal, transmucosal. The goal of moderate sedation is the safe and effective control of pain, anxiety and motion so as to allow a necessary procedure to be performed and to provide an appropriate degree of memory loss or decreased awareness [2]. Sedation, analgesia, or both may be needed for many of these interventional or diagnostic procedures. With the introduction of shorter-acting sedatives for sedation and opioids for pain control, specific reversal agents for both opioids and benzodiazepines, and the availability of noninvasive monitoring equipment, procedural sedation can now be safely administered in many healthcare settings [1]. The adverse effects associated with conscious sedation are a result of the class of drugs used, with hallucinations being the most frequently observed adverse reaction [3]. In dentistry, sedation techniques are not paincontrol techniques and are often overridden when the patient experiences intraoperative pain [4]. According to the ASA guidelines, most procedural sedation falls within the level of moderate sedation/analgesia although very painful procedures may require deep sedation/analgesia [2]. In this review, how invasive techniques plays a role in moderate sedation.

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Invasive Techniques

Intravenous

Intravenous is the infusion of liquid substances directly into a vein. The intravenous route is the fastest way to deliver fluids and medications throughout the body. The bioavailability of the medication is 100% in IV therapy. Although the IV route is the most effective, it is not preferred for children. Parenteral administration is a major cause of anxiety, discomfort, and trauma in children and the trend in pediatrics is to avoid injections whenever possible [5].

Propofol is a short-acting intravenous sedative. This drug is very useful for surgical interventions in the orofacial area, which necessitate a higher quantity of local anesthesia with adrenaline; propofol can help balance cardiovascular alterations resulting from the adrenaline injection [6].

Midazolam is the most frequently used benzodiazepines which induce state of sedation, anxiolysis and amnesia [7]. Unlike diazepam, midazolam may be prepared as a water soluble salt that facilitates intravenous (IV) and intramuscular (IM) administration minimal if any, local irritation. Once administered, midazolam becomes highly lipophilic [5]. However, midazolam can be used in conjunction with other sedatives like ketamine or propofol to help decrease the overall dosage needed, which also aids in minimizing any adverse effects and may promote quicker recovery times and a faster onset of sedative action[7]. The intravenous measured quantity for tranquility is 0.07-0.1 mg/kg[9].

Intravenous ketamine has been shown to have a powerful sedative effect; some researchers actually preferred ketamine to midazolam due to increased patient cooperativeness and

because it carried less side effects [6]. The corresponding intravenous dose is 1.5-2 mg/kg administered over a period of 60 s; the onset of action occurs within 30 s and the duration of action is 5-10 min. Ketamine may be infused intravenously at the rate of 50 mcg/kg/min [9].

Intramuscular

Intramuscular is the injection of a substance directly into a muscle. It is used for particular forms of medication that are administered in small volumes. Midazolam could be safely and successfully employed for conscious sedation in a routine Indian dental setup when used at a dosage of 0.2 mg/kg body weight. The study has also revealed that though the intramuscular and intranasal routes almost match each other in their efficacy & safety profiles, they show statistically significant differences pharmacodynamically, with regards to the onset of sedation, peak action and recovery periods [10]. When given parenterally, midazolam is preferred to diazepam. Diazepam's absorption after IM injection is slow and erratic and it is often associated with severe pain [8]. The intramuscular prescribed amount (used for premedication) is 0.07-0.08 mg/kg. The significant focal points of ketamine lie in its amnestic and pain relieving activities, the relative cardiovascular steadiness and the restricted impact on the respiratory mechanics. The intramuscular dose is 10 mg/kg; the onset of action is 2-8 min and the duration of action is 10-20 min [9].

Adverse effects

The sedative effects of propofol are stronger than those of midazolam, but it can also cause additional side effects such as sudden movements, crying, intermittent coughing, and pain at the site of injection. Propofol can also be combined with ketamine, although the combination of both these drugs may lead to hypoventilation. When administered intravenously, diazepam may cause phlebitis and local pain, whereas midazolam does not, due to its increased water solubility [3].

CONCLUSION

Hence we came to know about the different sedative drugs adminterstered through invasive techniques, role and sedative effects of it. Administration of moderate sedation was ought to be directed in a suitable setting that takes into account persistent supervision of the patient via expert and trained medical staff.

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