

Use of low dose intravenous ketamine for paediatric anaesthesia

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Abstract

Ketamine is 2-(2-chlorophenyl)-2 methylamino cyclohexanone hydrochloride- a phencyclidine derivative. Onset of anesthesia is rapid, but recovery from a bolus dose is slower than for propofol and thiopentone. Ketamine, unlike other induction agents, is an analgesic agent even at subanaesthetic dose. Advantages with ketamine anaesthesia are amnesia, profound analgesia, there is no respiratory depression. Disadvantages are hypertonia and hallucinations during emergence but incidence of this is less in children and may be reduced with premedication with benzodiazepine. This study was done at IIMSR, Warudi in 65 children, in which we have given intravenous ketamine as 1.5 mg/kg and then supplemented with local anaesthesia. Endotracheal intubation was avoided and patients were kept on spontaneous respiration with oxygen by mask.

Keywords: Ketamine, Paediatric Anaesthesia.

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Table 1: Types of surgeries done are shown in table

Serial Number	Name of Surgery	Number of cases
1	Inguinal hernia repair	31
2	Appendicectomy	21
3	Orchiopexy	09
4	Hydrocele	02
5	Hypospadias	02
	Total	65

Out of this 65 patients 53 were male and 12 female patients. Patients of ASA Grade I in the age group of 2-12 years of either sex, body weight of 10kg to 30 kg were included in the study. Patients with upper respiratory tract infections and other systemic disorders were excluded from the study. Preoperatively HR and Spo2 were noted. Patients were given injection Ondansetron 0.1mg/kg, injection Glycopyrrolate 0.005mg/kg, injection midazolam 0.05 mg/kg as premedication. Patients induced with injection Ketamine 1.5mg/kg intravenous and 1% Lignocaine hydrochloride was locally infiltrated after calculating the dose. Nitrous oxide and inhalation anaesthetic agents were not used for any patients. Patients were supplemented oxygen by mask @ 2liter/ minute with spontaneous respiration. In 10 patients we required additional Inj. ketamine supplementation with 0.5 mg/kg dose, and in 2 patients of appendicectomy we required to intubate after giving muscle relaxant. Oropharyngeal airway (silicone) of different sizes used in all patients for maintaining airway. Spo2 and HR monitoring done

INTRODUCTION

Paediatric anaesthesia is always challenging for Anaesthesiologists. Endotracheal intubation in paediatric patients may be traumatic at times and can cause bronchospasm while extubation. Various intravenous anaesthetic agents like propofol and thiopentone does not have analgesic properties. Ketamine is potent analgesic and onset of action is rapid. For reduction of emergence phenomenon we have to administer intravenous midazolam. Subanaesthetic dose of ketamine and local anaesthesia with 1% Lignocaine, was used in present study.

MATERIALS AND METHODS

This is a study of 65 cases undergoing surgical procedures, which are done after informed, written consent of patients parents.

preoperative, intraoperative and postoperative for 1 hr. No significant changes in HR found in this study. Patients were transferred to recovery room, oxygen insufflations 2 liter/min. was given with mask and closely monitored . Postoperative analgesia with diclofenac suppository was of much help.

RESULTS

We performed 63 cases under IV Ketamine and Local anaesthesia successfully. Only 2 cases required endotracheal intubation and muscle relaxants. Intubation Related complications were avoided. Postoperative nausea, vomiting were less and recovery from anaesthesia was also smooth.

DISCUSSION

In major Paediatric cases routinely succinyl choline is administered for intubation followed by non depolarising muscle relaxants like atracurium and vecuronium. Both these drugs have some side effects, like histamine release, increase serum potassium level, increase intraocular pressure, post fasciculation pain. We have avoided that in this study. Endotracheal Intubation can cause bronchospasm in some paediatric patients, which was avoided. There are many studies of use of IV Ketamine, in which IV Ketamine as 2 mg /kg was used without Local anaesthesia. In these cases dose requirement of ketamine is high and Endotracheal intubation also required in many cases. Side effect of ketamine is emergence phenomenon which was taken care of by using intravenous Midazolam as premedication. In this Study, we used low dose of Inj. ketamine which produced less side effects and satisfactory intraoperative and postoperative analgesia.

CONCLUSION

Use of IV Ketamine in 1.5 mg/Kg doses along with local anaesthesia, we found very effective and safe for paediatric patients. Analgesia was good intraoperative and post operative analgesic requirement was less. By using this dose of ketamine, side effects are less and we can avoid endotracheal intubation related complications.

We recommend the use of IV ketamine with local anaesthesia for safe paediatric anaesthesia.

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REFERENCES

1. Lei Wu, Kirk lalwani, Karla Hook- respiratory complications associated with ketamine anaesthesia for ophthalmic procedures following intraocular pressure measurement in children journal of anaesthesiology clinical pharmacology 2014/ vol 30 issue 2, page 253-257
2. Saada Sheta - procedural sedation Analgesia SJA, vol-4, issue 1 Page 11-16.
3. Madhavi Kurdi, kaushic Theerth -Ketamine current applications in anaesthesia, pain andand critical care. Anaesthesia Essays and Researches 2014, Vol-8, issue -3, page 283-290
4. Mehdi Momeni, mohsen Isfanbad, morteza saeedi - comparison of effects of intravenous ketamine and intramuscular ketamine for orthopaedic procedures in children'ssedation IJCHS 2014, Vol, 4 issue 3 Page 191-194.
5. Murat Gurduz, Sefika Sakalli - comparison of Effects of ketamine, Ketamine – Dex meditimidine and ketamine-midazolam on dressing changes of burn patients. Journal of Anaesthesiology clinical pharmacology, 2011, vol 27, Issve-2 Page 220-224
6. Hashim saleeh, Tahami Al Ahmadi Procedural sedation for paediatric patients in the emergency Department at king Khalid university hospital, Riyadh, K.S. A. Journal Of emergencies , Trauma and Shock, 2014, Vol 7, Issue.3 Page 186-189
7. Anmadha Ganigara, Madhavi, Nishtala, Airway Management of a child with frontometaphyseal dysplasia, Journal of Anaesthesiology clinical pharmacology, 2014, Vol 30 Issue 2, Page 279-280.
8. Pawan Agrawal - Safe Method for release of severe post burn neck contracture under tumescent local anaesthesia and ketamine, Indian journal of Plastic Surgery, 2004, Vol- 37, Issue-1, page 51-54

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