ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 11 | November - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ANAESTHETIC MANAGEMENT OF PAEDIATRIC PATIENT WITH DUCHENNE MUSCULAR DYSTROPHY POSTED FOR LAPAROSCOPIC CHOLECYSTECTOMY- A CASE REPORT

Anaesthesiology

Dr Aditi Sood* Senior Resident, Department of Anaesthesia, CMC Ludhiana. *Corresponding Author

Dr Hemani Ahuja Associate Professor, Department of Anaesthesia, CMC Ludhiana

ABSTRACT

A 14 year old male, known case of Duchenne Muscular Dystrophy, posted for elective laparoscopic cholecystectomy, intubated and managed successfully with total intravenous anaesthesia.

KEYWORDS

Duchenne muscular dystrophy, laparoscopic cholecystectomy.

INTRODUCTION

Duchenne muscular dystrophy is one of the common myopathies in pediatric age group. It is an x-linked recessive inherited disorder. It has an incidence in the general population of 1:3 500 live male births(1). It results due to mutation of dystrophin gene, leading to abnormal or absence of dystrophin protein. It presents early in childhood, before 8 years of age (2). It's characterized by ongoing degeneration of skeletal muscles in which muscular tissue is replaced by fibrous tissue and fatty infiltrations. In advanced stages, the child may have cardiac and pulmonary involvement as well. These patients present as a huge anaesthetic challenge, because of the risk of rhabdomyolysis, hyperkalemia, cardiac arrest, increased muscle weakness and airway management problem. (3)

Case Report

A 14 year old boy, known case of Duchenne Muscular Dystrophy, detected at the age of 4 years of age, came with chief complaints of fever on and off, vomiting since one week and pain abdomen since one week. After investigations and imaging, a diagnosis of cholelithiasis with gall bladder neck calculus was made. Patient was hence planned for laproscopic cholecystectomy. Patient was examined and pre anaesthetic checkup was done a day prior. He had progressive bilateral lower limb weakness. He had a large tongue (Mallampatti grade 3). He was cleared by cardiology under high risk in view of ejection fraction of 45% on echocardiography. Also, his pulmonary function tests showed severe restriction. After confirming nill per oral hours for more than 6 hours for solids and 2 hours for liquids, and after high risk consent , the patient was taken up for surgery the next day. Intraoperative monitoring included electrocardiography, non invasive blood pressure monitoring, pulse oximetry, capnography and temperature monitoring. Prior to intubation, soda lime canister was refilled with fresh soda lime, and vaporizers were dismounted. He was induced using oxygen, inj. Midazolam 1mg I/v, inj propofol 50mg I/v and inj ketamine 30mg I/v. Patient was intubated with cuffed endotracheal tube no. 6, and it was fixed after checking for equal air entry on both sides of chest. Anaesthesia was maintained with oxygen, nitrous oxide, propofol infusion and ketamine boluses. There was no hemodynamic instability episode intraoperatively. The total duration of procedure was two hours. Patient was extubated when he was fully awake and had good respiratory efforts. Patient was monitored there on, in post anaesthesia care unit.

DISCUSSION AND CONCLUSION

The affected patients present most commonly for diagnostic procedures or for emergency surgeries. The anaesthetic concerns in a child with Duchenne muscular dystrophy include possibilities of difficult intubation, prolonged duration of neuromuscular block, possible need for postoperative ventilation and occurrence of rhabdomyolysis and cardiac arrhythmias when exposed to halogenated volatile anaesthetic agents and depolarizing muscle relaxants.

Pre-operatively, patient should be evaluated with blood tests including complete blood count, coagulation tests, creatine kinase and recent electrolytes. Baseline ECG should also be done, followed by echocardiography. Pulmonary function tests should also be assessed.

Difficult intubation/laryngoscopy has been seen in many cases. In a retrospective study done by Breucking *et al*., difficult intubation was experienced in eight of the 219 patients (4) Various studies have shown that the response of non depolarizing muscle relaxants is variable in patients of muscular dystrophy.

Delayed onsets of action and prolonged effect have been commonly observed after the use of non depolarizing neuromuscular blocking agents. Intravenous anaesthetic agents can be safely used. Potassium free crystalloids are preferred.

For post operative pain relief, opioids when used cautiously, are considered safe. NSAIDS can trigger rhabdomyolysis, hence are avoided. Paracetamol can be used.

REFERENCES

1 Tladi, R., and R. Swart. "A case report of the successful use of regional anaesthesia and mixed sedative techniques in an adolescent with Duchenne muscular dystrophy." (2021): 48-50
2 Kaur H, Singh G, Saini N, Singh G, Singh A. Duchenne muscular dystrophy and anesthesia: revisited. Research and Opinion in Anesthesia and Intensive Care. 2021 Jan 1;8(1):60.
3 Bhutia MP, Pandia MP, Rai A. Anaesthetic management of a case of Duchenne muscle dystrophy with Moyamoya disease. Indian Journal of Anaesthesia. 2014 Mar;58(2):219.
4 Breucking E, Reimnitz P, Schara U, Mortier W. Anesthetic complications. The incidence of severe anesthetic complications in patients and families with progressive muscular dystrophy of the Duchenne and Becker types. Anaesthesist. 2000;49:187–95.