Archives of Anesthesiology and Critical Care (Autumn 2023); 9(Supplement 2): 559-561.

Available online at http://aacc.tums.ac.ir

Case Report

Dual Intraoperative Management of a Patient Withrare form of Epilepsy- Hot Water Epilepsy and Corrected Ventricular Septal Defect Undergoing Implant Exit Removal of Tibia

Hannah Mounika Nunna*, Vinod Krishna Gopal, Purushotham G

Department of Anesthesia, Sree Balaji Medical College and Hospital, Bharath University, Chennai, India.

ARTICLE INFO

Article history:
Received 15 September 2022
Revised 11 October 2022
Accepted 27 October 2022

Keywords:
Hot water epilepsy;
Corrected ventricular septal defect;
Anesthetic management

ABSTRACT

Hot water Epilepsy (HWE) is a type of epilepsy which occurs when hot water is poured over the body. Patient undergoing implant exit removal of tibia was intra operatively managed who has the history of corrected VSD and hot water epilepsy.

Introduction

Seizures that are precipitated by a sensory stimulus is known as reflex or sensory epilepsy. If the stimulus is hot water bathing or pouring over head with a temperature around 40-50 degree Celsius, it is known as hot water epilepsy also known as bathing epilepsy or water immersion epilepsy. Ventricular septal defect is a form of heart disease in children which can treated at early childhood [1-2]. Corrected VSD can be challenging for anesthetic management for non cardiac surgery.

Case Report

39-year-old male, belongs to south India was planned for implant exit removal of tibia who wasoperated 8 years ago. Patient was known case of hot water epilepsy since childhood, under medication and a known case of ventricular septal defect. Patient was operated in childhood and no complications noted henceforth. Coming to the history of hot water epilepsy, patient had generalized episode of seizures when hot water was poured over head or patient took bath with hot water. They were generalized tonic clonic type of seizures which lasted for 5-10 minutes with loss of consciousness. Patient was undergoing treatment for the seizures. No genetic relation was found in the family. Last episode of seizures was noticed 10 months back. Patient was taking the following medications for past 5 years.

Patient was operated for ventricular septal defect at the age of 3 with shunt reversal after which patient had no functional limitation and no complications related to ventricular septal defect. There were no complaints of cyanosis or shortness of birth pre operatively. Patient had a road traffic accident 8 years back and sustained right femur fracture, right tibia fracture and right patellar fracture for which IMIL nailing of femur, plating proximal tibia and patellar circular wire band were done respectively. Anesthetic evaluation included If the patient had recent episode of seizure, taking regular medications, Cyanosis which is the most common feature of unrepaired or partially palliated congenital heart disease(CHD), shortness of breath and any recent history of ventricular arrhythmias or Any underlying lesion. MRI brain was taken to rule out any lesion related to the seizure history which inferred Hypo intensity in right

The authors declare no conflicts of interest.

*Corresponding author.
E-mail address: c125hannah@gmail.com

basal ganglia measuring 6x4mm. No Peri lesional edema suggesting foci of previous hemorrhage. EEG was not done for this patient as the patient was not affordable. 2D-ECHO was done which inferred Ejection fraction: 56% with No regional wall abnormality. Normal left ventricular systolic function. Grade 1 diastolic dysfunction. Patient was given fitness for non cardiac surgery as low risk. The above assessment was done and advised preoperative treatment with the following was given along with adequate fluids.

Patient was operated under epidural analgesia with general anaesthesia. Patient in supine position, adequately premedicated and Preoxygenated. Patient was induced with INJ.thiopentone sodium 200mg.

Patient intubated. Plane of anaesthesia maintained with Oxygen, Nitrous oxide and Sevoflurane. Intraoperative analgesia up with 0.125% Inj. Bupivacaine hourly. Patient was carefully monitored intra operatively and administration of warm fluids was strictly avoided. There was no evidence of seizure episode, ventricular arrhythmias, cyanosis, pulmonary hypertension, hypoxia during the intra operative period noted. Patient was extubated after checking adequate tidal volume [3]. The anti epileptic agents, Intraoperative anti-epileptic agents and induction agents are mentioned in the (Table 1-3).

Table 1- Anti epileptic agents

Tab.Phenytoin	100mg	BD
Tab.SodiumValproate	200mg	BD

Table 2- Intraoperative anti epileptic agents

Inj.Valproate	400mg	IV	BD
Inj.Fosolin	150mg	IV	TID

Table 3- Induction agents

Inj.Thiopentone sodium	200mg	IV
Inj.Succinyl choline	100mg	IV

Discussion

Hot water epilepsy comes under group of reflex epilepsies which account for 6% of all epilepsies which means they are provoked by an external stimulus, which is hot water as described in (Figure 1-2). Genetic wise, there can be two loci for HWE, one on 10q21.3-q22.3 and the other on 4q24-q28.

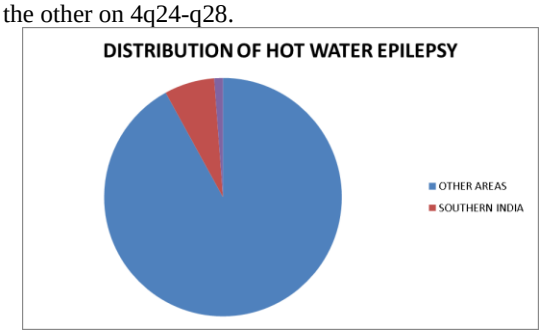

Figure 1- Distributiom of Hot water epilepsy

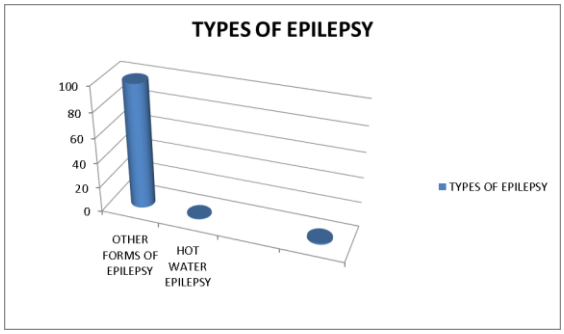

Figure 2- Types of epilepsy

Familial HWE is noticed in more than one family member which accounts usually 7-15% in India, where cases are reported mainly from south India. This form of epilepsy mainly generated due to an area called aberrant thermoregulatory centre which is sensitive to sudden spurt in regional temperature like hot water bath. The other mechanism can be, defective inhibitory influence volleys of Somatosensory stimuli (warm water) over a large body surface ~ similar to mechanism of febrile seizures, present as tonic clonic seizures, within 30 seconds of pouring water, stiffening of all four limbs, stays for 2-3 minutes, no residual neurological deficit is noted. EEG (Inter Ictal scalp), MRI brain, routine blood tests, Serum. Electrolytes, Serum. Calcium, blood sugar, CSF analysis are suggested [4-5].

The HWE can be effectively managed by use of conventional anti epileptic drugs which carry excellent prognosis.

Conclusion

The Hot water epilepsy can be effectively managed by use of conventional anti epileptic drugs which carry excellent prognosis.

References

[1] Mathew RR, Raju K, Nair BR, Mariappan R. An observational case-control study comparing the recovery profile in patients receiving additional dose of anticonvulsant vs. regular dose during supratentorial craniotomy. Indian J Anaesth. 2020; 64(3):222-229.

[2] Menghraj SJ. Anaesthetic considerations in children with congenital heart disease undergoing non-cardiac surgery. Indian J Anaesth. 2012; 56(5):491-5.

[3] Dhansura T, Bhorkar N, Pawar P, Gandhi S. Anaesthetic management in a patient with Lennox-Gastaut syndrome. Indian J Anaesth. 2014; 58(2):238-9.

[4] Leyvi G, Wasnick JD. Single-ventricle patient: Pathophysiology and anesthetic management. J Cardiothorac Vasc Anesth. 2010; 24(1):121-30.

[5] Bansal T, Hooda S, Jaiswal R, Bansal M. Delayed recovery from anaesthesia due to acute phenytoin therapy. Indian J Anaesth 2014; 58(6):783-5.