P7

MALIGNANT HYPERTHERMIA IN NEONATES ANY DIFFERENCE

P. Panesar, NHS Didsbury, UK

Case report

Description

This is a case report of potentially the youngest confirmed case of Malignant Hyperthermia (MH) in a 14 day old neonate.

A 2.31 kg term baby girl was delivered via normal vaginal delivery. They were admitted to the neonatal intensive care unit (NICU) at 4 hours of age with respiratory distress. Imaging of the chest revealed a suspected Congenital Diaphragmatic Hernia (CDH) and so they were planned for theatre. No other significant history or family history was of note with father having had an uncomplicated general anesthetic before.

Following gas induction heart rate remained high and continued to increase along with increasing muscle rigidity. ETC02 remained normal at 4.5 kPa and temperature did not go above 38.0C. A repeat bolus of muscle relaxant, atracurium, was given along with a fluid bolus. There was no improvement in muscle rigidity and while HR dropped initially it began to climb again, with a cap gas taken showing elevated C02 of 11.5. The declaration of MH was made. The patient was transferred onto the transfer vent and a vapor free circuit with intermittent fentanyl was given, dantrolene was drawn up and administered, while surgery was suspended. Following the first dose of dantrolene there was an improvement in symptoms but a further 4 doses were needed for full resolution. She was then taken back to NICU and kept I+V where she remained stable and was extubated the next day.

Genetic testing showed the patient was homozygous for a pathogenic RYR1 missense variant.

Discussion

Malignant Hyperthermia is a recognized general anaesthetic complication with an incidence in the paediatric population of 1 per 30,000 anaesthetics 1. MH is a progressive, life-threatening hyperthermic reaction occurring during general anesthesia 2.

This case report demonstrates that although rare, MH can occur on neonates and a high index of suspicion and prompt treatment can avoid adverse outcomes. However this is particularly difficult since there are no specific clinical features of MH 3.

Interesting findings in our case study included firstly that the ETCO2 level remained within normal limits. Secondly, the maximum temperature the neonate reached was 38.0 C. This is low compared to what is classically expected. An explanation could be that in neonatal cases the temperature rise may not be as dramatic because they are already predisposed to heat loss and lower muscle mass. Therefore one must remain vigilant for a lack of temperature drop when exposed for lines and positioning and consider MH as a possible diagnosis early.

Acknowledgements

No conflict of interests and parents' permission was obtained to write up his case.

References

1. Watt S, McAllister RK. Malignant Hyperthermia. [Updated 2022 May 2]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK430828

2. Pawan K Gupta, Philip M Hopkins, Diagnosis and management of malignant hyperthermia, BJA Education, Volume 17, Issue 7, July 2017, Pages 249–254, 3.Hopkins PM, Girard T, Dalay S, et al. Malignant hyperthermia 2020: Guideline from the Association of Anaesthetists. Anaesthesia. 2021;76(5):655-664. doi:10.1111/anae.15317