Case Report

Malignant hyperthermia a case report during cardiac surgery

Summary

A case of a patient, male, 57 years old programmed for cardiac surgery who develops malignant hyperthermia (MH) in the middle of the procedure. It differs from earlier reports of M H in that no hyperthermia was allowed to develop. The diagnosis was made contemplating the other symptoms the patient presented such as mild metabolic acidosis and enzyme elevations, most notably of CPK.

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Julieta Cervellera Agrelo
Anaesthesiologist, Argentine

Correspondence: Julieta Cervellera Agrelo, Anaesthesiologist, Argentine, Email jucervellera@yahoo.com.ar

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Case presentation

A 57-year-old male patient scheduled for triple bypass revascularization surgery will perform mammary surgery on the AD, circumflex and right coronary arteries for severe coronary disease, with no other history of interest. On the day of the intervention, we placed invasive arterial and two peripheral pathways with Abb 14. Anesthetic premedication was performed with midazolam 2mg and fentanyl 100ìg EV and 1mg of vecuronium. Invasive blood pressure is monitored, continuous electrocardiographic rhythm in DII shunt with ST segment tendency, pulse oximetry. Anesthesia induction is performed with 2mg of midazolam 60 mg of propofol and is relaxed with 80 mg of succinylcholine since the patient had a difficult airway. He was intubated and ventilated. Current volume of 7ml.kg^{-1} and respiratory rate of 12rpm, complete with monitoring of central venous pressure by internal jugular vein catheterization and capnometry, nasal temperatures and urinary rhythm.

Anesthetic maintenance was achieved with oxygen-air mixture (FiO^2 of 0.7), 1% sevoflurane and remifentanil infused at 0.9mg/kg/min. Patient is given a total cardiopulmonary bypass (DCP) time of 120 minutes. During the DCP anesthesia was maintained with 1% sevoflurane and bolus of vecuronium and fentanyl. Passing only fifteen minutes of the DCP the patient started presenting a decrease in acid basic equilibrium: ph 7,25, P CO^2 of 50. The patient maintained a temperature of 35 degrees Celsius despite the effort of the perfusionist to cool him.

Cause of the PCO 50, we decided to increase oxygen to 8L. Despite that measurements the patient continue increasing the PCO. The next sample was taken 15 minutes after the oxygen was increased and this showed ph 7 PCO^2 60 and temperature continued increasing, at that time at 36,6. We decided to order CPK to corroborate malignant hyperthermia and obtain high CPK results per 100. Under these circumstances, diagnosis of malignant hyperthermia was made and sevoflurane gas was suspended and started infusion of midazolam and treatment with dantrolene sodium, 2mg/kg intravenous (IV), a dose that was repeated every 5 or 10 minutes up to a total dose of 10mg/kg.[1–4]

The patient began to relapse after 30 minutes of onset, fever decreased, acid base equilibrium was restored, urine was clarified, hemodynamism was stabilized, allowing DCP to be withdrawn with dopamine at 7g/Kg/min. Within 24hours of initiating the process, the patient was waking up without any sequelae. Serum creatinine elevation (330mg/dL) was observed, which decreased progressively in the following days and could be weaned from mechanical ventilation at 48 hours, being discharged from the ICU on the fifth day, already recovered.

Conclusion

This case only presents a few symptoms of malignant hyperthermia excluding high temperature due to the patient being under cardiopulmonary bypass which causes him to be cooled by the machine. Anaesthesiologist and all medical personnel involved in cardiac surgery should be aware of early sings of malignant hyperthermia since its early recognition and prompt treatment reduce morbidity and potential mortality of this serious complication.

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Conflicts of interest

The authors declare there are no conflicts of interest.

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