EMERGENCY MANAGEMENT OF MALIGNANT HYPERTERMIMA

ACT FAST. Successful treatment depends on early diagnosis and aggressive treatment. The onset of a reaction can be within minutes of induction. Previous uneventful anaesthesia DOES NOT exclude MH.

DIAGNOSIS:
1. unexplained, unexpected increase in end-tidal CO2 together with
2. unexplained, unexpected increase in heart rate together with
3. unexplained, unexpected increase in oxygen consumption
(Masser muscle spasm, and especially more generalised muscle rigidity after suxamethonium, indicate a high risk of MH susceptibility but are usually self-limiting)

Eliminate trigger drug
• Turn off vapourisers & remove
• 100 % Oxygen, max flow
• Hyperventilate (2-3 times normal minute ventilation)
• Place Activated Charcoal Filters on both limbs of anaesthetic workstation
• Change soda lime & breathing circuit if/when feasible

Give Dantrolene
• 2 – 3 mg/Kg IV, then
• 1 mg/Kg every 5 min, until
• ETCO2 < 6 kPa & Temp < 38.5 °C, then
• Pause & observe
• Give further 1 mg/Kg as required to keep ETCO2 < 6 kPa & Temp < 38.5 °C, even if this means exceeding total dose of 10 mg/Kg

Active body cooling
• Turn off active warming
• Apply ice to axillae/groins
• Cold IV fluids
• Cold peritoneal lavage
• Other cooling methods according to need and availability of equipment & expertise
  • Surface cooling devices
  • Intravascular devices
  • Extracorporeal heat exchange

MONITOR
ECG, SpO2, end-tidal CO2; Direct arterial BP, CVP; Core & peripheral temperature; Urine output & pH; ABGs, K+, glucose; Haematocrit, platelets, clotting indices; Creatine kinase (peak 12-24 hr)

TREAT
• Acidosis: give sodium bicarbonate 50 mmol if pH<7.2 despite hyperventilation
• Hyperkalaemia: sodium bicarbonate 50 mmol, glucose (50 mL 50%) & insulin 10 IU, IV calcium 0.1 mmol/Kg (in extremis)
• Myoglobinuria: forced alkaline diuresis (aim for urine output >2 mL/Kg/hr; urine pH > 7)
• DIC: clotting factors, platelets
• Tachyarrhythmias: amiodarone, beta-blockers (N.B., avoid calcium channel blockers – interaction with dantrolene)
• Compartment syndrome

Manage patient in ICU/HDU for 24 hrs. Further dantrolene may be needed. Counsel patient and family. Refer to MH Unit www.ukmhr.ac.uk

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