

ANAESTHETIST 1: RESUSCITATION

■ DANTROLENE:

2.5 mg/kg every 10 -15 minutes IV until signs of hypermetabolism (acidosis, pyrexia, muscle rigidity) are resolving:

- DO NOT delay dantrolene to insert central venous line

Note that dantrolene can interact with calcium channel blockers (eg. verapamil) and precipitate profound hypotension.

■ REMOVE TRIGGERS AND MAINTAIN ANAESTHESIA:

- Remove volatile agents and hyperventilate with high flow 100% oxygen
- Insert charcoal filters (if available)
- Maintain IV anaesthesia

■ HYPERKALAEMIA MANAGEMENT:

- Hyperventilation
- Insulin 0.15U/kg + 0.5ml/kg 50% dextrose as rapid IV infusion (10U insulin in 50 ml 50% dextrose in adults)
- CaCl₂ (10%) - 0.1ml /kg OR Ca gluconate (10%) 0.3ml/kg

■ ARRHYTHMIA MANAGEMENT:

- Amiodarone:
3mg /kg slowly IV
- Lignocaine: 1mg/kg IV
- Metoprolol: 1-2mg IV prn
- Hyperkalaemia management as above

■ ACIDOSIS MANAGEMENT:

- Ventilate to normocapnia
- Consider 0.5-1 mmol/kg sodium bicarbonate - for pH < 7.2 (8.4% is 1mmol/ml)

■ RENAL PROTECTION:

- Maintain urine output ≥ 2 ml/kg/hr by increasing intravascular volume – crystalloid (30-50mls/kg as clinically indicated)
- Consider diuresis if adequate IV volume
- frusemide
- mannitol

there is 3g mannitol/vial of dantrolene

■ INOTROPIC SUPPORT:

- Adrenaline / Noradrenaline prn

ANAESTHETIST 2: LINES & INVESTIGATIONS

ENSURE TEMPERATURE PROBE INSERTED

■ TEMPERATURE

- Ensure adequate temperature monitoring

■ ACCESS

- Establish good IV access with wide bore cannulae
- Insert an arterial line
- Consider central venous access

■ MONITORING

Check these parameters frequently

- Arterial blood gases
- Potassium
- Creatinine Kinase
- Glucose
- Coagulation
- Serum myoglobin
- Urine output

■ ANAESTHETIC RECORD

- Ensure an accurate anaesthetic record is being kept
- Document times, temperatures, drugs and monitor recordings
- Document blood results

ANAESTHETIC ASSISTANT

ONCE THE MH BOX & REFRIGERATED SUPPLIES ARE IN OT:

■ 1.

Lay out contents of MH box on a dedicated surface

■ 2.

Prepare arterial-line equipment and assist anaesthetist to insert arterial line (and CVC if required)

■ 3.

Assist with dantrolene mixing

■ 4.

Ensure adequate stocks of resuscitation drugs are maintained

■ 5.

Ensure adequate supplies of TIVA drugs

Ensure volatile agent has been removed from operating theatre.

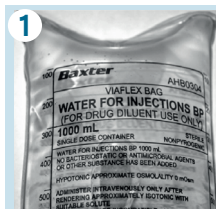
Assist with charcoal filters if required

Change sodalime when required

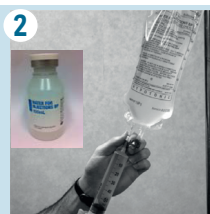
DANTROLENE RECONSTITUTION (HIGHEST PRIORITY)

Mixing dantrolene can be very time consuming. Use as many people as are available. Here is one method.

12 AMPOULES will be required for each dose in a 100kg patient up to **every 10-15 minutes**.



Dantrolene must be mixed **ONLY** with **STERILE WATER**.



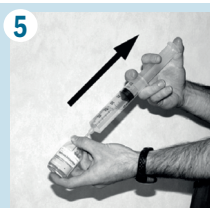
60 mls water for each 20mg vial from bag or bottle.



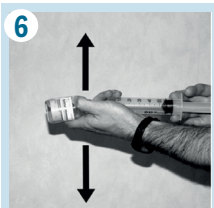
Remove metal vial cap or flip off cap.



Inject 30ml of water.



Hold syringe vertically, allow air in vial to escape, inject remaining 30mls water.



Hold together firmly or disconnect and shake to mix.

LOGISTICS

USUALLY THE OPERATING THEATRE COORDINATOR

■ Call for additional anaesthetic support

- A minimum of TWO specialist anaesthetists should be involved

■ Call senior surgeon

- if required to complete surgery rapidly
- to notify him/her of the crisis

■ Mobilise off-site dantrolene

- 36 ampoules should be kept on site for immediate management
- Further Dantrolene stocks are held at:

Hospital 1

Stocks:

Vials:

Hospital Name/Contact Name:

.....

Phone (Daytime):

.....

Phone (After Hours):

.....

Hospital 2

Stocks:

Vials:

Hospital Name/Contact Name:

.....

Phone (Daytime):

.....

Phone (After Hours):

.....

Organise URGENT transfer of additional stocks.

Consider rescue helicopter, fixed wing, ambulance, police escort.

■ ICU bed or transfer

- All patients must go to an ICU
- Up to 25% of patients relapse in the first 24 hours
- Give early warning to ICU staff of the MH crisis
- Send for ICU bed or arrange transfer to another hospital

ASSIST WITH DANTROLENE MIXING

SURGICAL TEAM

■ SURGERY

- Complete or abandon surgery as soon as possible
- Call for senior help if required to complete surgery more quickly

■ URINARY CATHETER

- Insert urinary catheter at earliest convenience

ASSIST WITH DANTROLENE MIXING

■ HELP COOL PATIENT

- Expose all parts of the patient outside immediate sterile field
- If abdomen open, consider washout with crystalloid at 4°C
- Assist with packing all exposed body parts with ice bags

COOLING

THIS TASK MAY BE PERFORMED BY THEATRE ORDERLY WHERE AVAILABLE, OR BY ANY OTHER PERSON.

■ Ambient temperature

- Reduce operating theatre thermostat to lowest setting

■ Defibrillator

- Transport defibrillator located

■ IV fluids

- Collect 2L crystalloid (for intravenous infusion) and Actrapid Insulin from refrigerator located

■ Obtain additional ice as needed from:

■ ICE

- Bring buckets of ice from ice machine located
- Assist packing all exposed body parts with ice bags

Tissue destruction will occur at 41.5°C

BUT do not overcool – cease active cooling at 38°C