

MALIGNANT HYPERTHERMIA

MODULE: CRITICAL INCIDENTS

TARGET: ALL ANAESTHETISTS

BACKGROUND:

All anaesthetists are expected to be able to recognise the features of this life-threatening condition, institute management for its treatment and its potential sequelae. Recent AAGBI guidelines highlight effective teamwork and specific task allocation as fundamental aspects of the treatment of malignant hyperthermia.

RELEVANT AREAS OF THE ANAESTHETIC CURRICULUM

IO_BS_07	Demonstrates role as team player and when appropriate leader in the intra-operative environment
IO_BS_08	Communicates with the theatre team in a clear unambiguous style
IO_BS_09	Able to respond in a timely and appropriate manner to events that may affect the safety of patients [e.g. hypotension, massive haemorrhage] [S]
CI_BK_06	Rise in end tidal CO ₂
CI_BK_10	Sinus tachycardia
CI_BK_11	<p>Arrhythmias:</p> <ul style="list-style-type: none"> • ST segment changes • Sudden tachyarrhythmias • Sudden bradycardia • Ventricular ectopics • Broad complex tachycardia • Ventricular Fibrillation • Atrial fibrillation • Pulseless electrical activity [PEA]
CI_BK_30	Malignant hyperpyrexia
3.1	Manages the care of the critically ill patient with specific acute medical conditions
4.8	Recognises and manages electrolyte, glucose and acid-base disturbances
CI_BS_01	Demonstrates good non-technical skills such as: [effective communication, team-working, leadership, decision-making and maintenance of high situation awareness]
CI_BS_02	Demonstrates the ability to recognise early a deteriorating situation by careful monitoring
CI_BS_03	Demonstrates the ability to respond appropriately to each incident listed above
CI_BS_04	Shows how to initiate management of each incident listed above
CI_BS_05	Demonstrates ability to recognise when a crisis is occurring
CI_BS_06	Demonstrates how to obtain the attention of others and obtain appropriate help when a crisis is occurring
CI_IS_01	Demonstrates leadership in resuscitation room/simulation when practicing response protocols with other healthcare professionals
CI_IS_02	Demonstrates appropriate use of team resources when practicing response protocols with other healthcare professionals

INFORMATION FOR FACULTY

LEARNING OBJECTIVES:

- Recognition of the signs of malignant hyperthermia under general anaesthesia
- Initial management of malignant hyperthermia, including administration of dantrolene
- Recognition and management of the metabolic sequelae

SCENE INFORMATION:

- Location: Theatre

Mrs Diane Leen is a 26 year old woman who has been induced for a breast operation; a wide local excision. She is currently self ventilating via a laryngeal mask airway under general anaesthesia with Sevoflurane maintenance. The anaesthetics trainee has been called in to take over the case as the consultant anaesthetist needs to go and pre-op the next patient.

EQUIPMENT & CONSUMABLES

Manikin – on theatre trolley.
 LMA in situ – Spontaneous ventilation
 Checked anaesthetic machine
 Stocked Airway trolley
 - Laryngoscopes (2 x Macintosh)
 - ET Tubes (Various Sizes)
 - OP, NP and Advanced Supraglottic airways (iGels, LMAs)
 50ml syringes for propofol infusion
 Theatre drapes
 Dantrolene
 Cold IV Fluids
 Ice

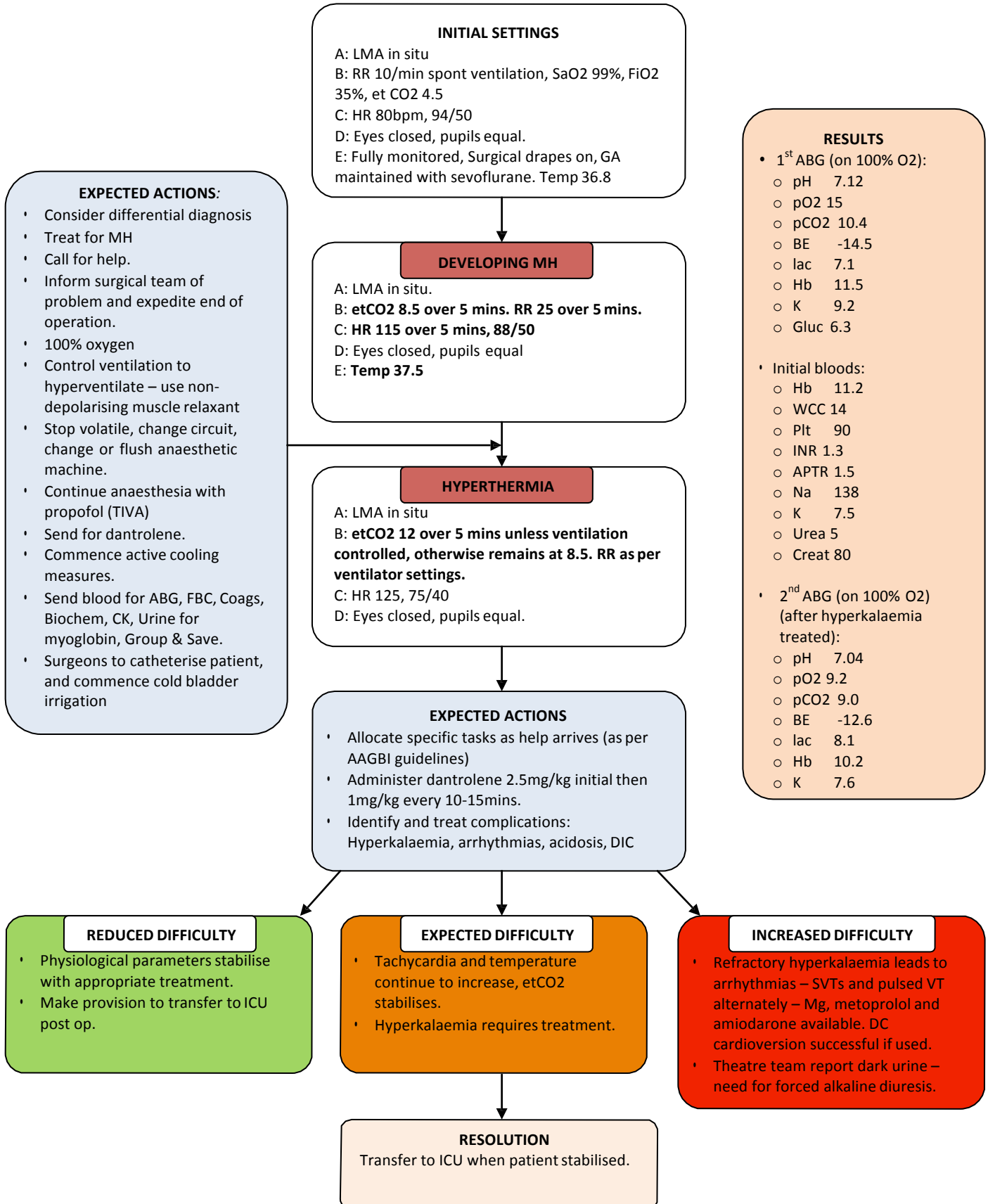
PERSONS REQUIRED

Anaesthetic Junior Trainee
 Anaesthetic Assistant
 Anaesthetic Senior Trainee
 Surgeon
 Scrub Nurse

VOICE OF 'TELEPHONE HELP BRIEFING'

Inform the team of the presence of the AAGBI guidelines within the sim suite (if available).
 Ensure the team know where the dantrolene is in the sim suite.
 Provide additional team members at intervals through this scenario if required.

CONDUCT OF SCENARIO



INFORMATION FOR PARTICIPANTS

KEY POINTS:

- Recognition of the signs of malignant hyperthermia under general anaesthesia
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WORKPLACE-BASED ASSESSMENTS

CIB – D_01	<p>Basic Competences for Critical Incidents – Demonstrates the emergency management of the following critical incidents in simulation:</p> <ol style="list-style-type: none"> 1. Rise in end tidal CO2 2. Unexpected hypotension 3. Sinus Tachycardia 4. Arrhythmias [ST segment changes; sudden tachydysrhythmia; sudden bradycardia; Ventricular Ectopics – Ventricular tachycardia – Ventricular Fibrillation] <p>Demonstrate the management of the following specific conditions in simulation:</p> <ol style="list-style-type: none"> 1. Malignant hyperpyrexia
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FURTHER RESOURCES

1. AAGBI Guidelines (Aug 2011):
 - Malignant Hyperthermia Crisis Task Allocations
 - Malignant Hyperthermia Crisis laminate
 - Malignant Hyperthermia Crisis recommended contents

2. AnaesthesiaUK Malignant Hyperthermia Resource
<http://www.frca.co.uk/sectioncontents.aspx?sectionid=83>

PARTICIPANT REFLECTION:

What have you learnt from this experience? (Please try to list 3 things)

How will your practice now change?

What other actions will you now take to meet any identified learning needs?

PARTICIPANT FEEDBACK

Date of training session:.....

Profession and grade:.....

What role(s) did you play in the scenario? (Please tick)

Primary/Initial Participant	
Secondary Participant (e.g. 'Call for Help' responder)	
Other health care professional (e.g. nurse/ODP)	
Other role (please specify):	
Observer	

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
I found this scenario useful					
I understand more about the scenario subject					
I have more confidence to deal with this scenario					
The material covered was relevant to me					

Please write down one thing you have learned today, and that you will use in your clinical practice.

How could this scenario be improved for future participants?
 (This is especially important if you have ticked anything in the disagree/strongly disagree box)

FACULTY DEBRIEF – TO BE COMPLETED BY FACULTY TEAM

What went particularly well during this scenario?

What did not go well, or as well as planned?

Why didn't it go well?

How could the scenario be improved for future participants?