STANDARD PATHWAY FOR TYPE A AORTIC DISSECTION PREOPERATIVE MANAGEMENT IN MORRISTON HOSPITAL CARDIAC CENTRE

Receiving Aortic Dissection Referral

Cardiothoracic Registrar on call

1- Discuss the case with the consultant surgeon on call.
2- Asking the referral doctor for an arterial line and starting labetalol infusion if needed (as long as it will not delay patient transfer).
3- Communicate with the nurse in charge and anaesthetic registrar (emergency aortic dissection team activation).

CITU Anaesthetic Doctor

1- Call the anaesthetic consultant on call.
2- Insert 14 g IV drip, left-sided arterial line.
3- Ensure labetalol is running and BP is under control.
4- Ensure adequate analgesia.

If any item of the preoperative preparations is not completed, the patient should be transferred to CITU until all preoperative preparations are fulfilled.

Patient will be taken to the theatre after ensuring the following preoperative preparations are completed:

1- The whole team (consultant cardiothoracic surgeon, consultant anaesthetics, ODP, perfusionist, both on-call scrub staff) is available in the hospital, and team briefing is completed.
2- Documented clinical assessment by the consultant surgeon and anaesthetist.
3- Documented informed consent.
4- Ensure the availability of cross matched blood.

CITU Nurse in Charge Role

1- Perfusionist

- Prepare the CPB, cannulas, and grafts/valves.
- Cell saver and cytosorbe.
- Circulatory arrest
- Cerebral perfusion

2- Anaesthetic ODP

- Prepare for GA medications.
- 2 Arterial line, CVC, and PA sheath.
- Machine check, head cooling.
- TOE
- Patient transfer to the theatre

3- Scrub Team

- Prepare the surgical equipment.
- Confirm patient identity.
- Surgical theatre preparation.
- Patient transfer

4- Assign Nursing Staff

- Arrange for blood investigations, cross matching and blood products availability.
- Arrange patient admission on Signal system, print off patient identification wrist band labels.

POLICY STATEMENT

This document outlines the standard process for preoperative management of Type A aortic dissection patients in Morriston Hospital Cardiac Centre including patient monitoring, place of admission and assigned roles of the surgical team.

SCOPE OF POLICY

This policy applies to all staff and any particular areas of responsibility for dealing with Type A aortic dissection cases.

AIMS AND OBJECTIVES

The purpose of this guideline is to ensure that all patients with Type A aortic dissection will receive:

1- Proper primary resuscitation care in the referral hospitals.
2- Standard monitoring tools.
3- Standard transfer process.
4- Suitable place for admission and transfer to the operative theatres.
5- Standard surgical team roles.
6- Standard management of emergency situations.

RESPONSIBILITIES

1- Cardiothoracic registrar on call

- Discuss the case with the consultant surgeon on call.
- Asking the referral doctor for an arterial line and starting labetalol infusion for blood pressure control (as long as it will not delay patient transfer).
- Communicate with the nurse in charge and anaesthetic registrar (emergency aortic dissection team activation).

2- CITU anaesthetic doctor

- Call the anaesthetic consultant on call.
- Insert 14 g IV drip, left-sided arterial line.
- Ensure labetalol is running and BP is under control.
- Ensure adequate analgesia.

3- Patient will be taken directly to the theatre after ensuring the following preoperative preparations are completed:

- The whole team (consultant cardiothoracic surgeon, consultant anaesthetics, ODP, perfusionist, both on-call scrub staff) is available in the hospital, and team briefing is completed.
- Documented clinical assessment by the consultant surgeon and anaesthetist.
- Documented informed consent.
- Ensure the availability of cross matched blood.

If any of the preoperative preparations is not completed, the patient should be transferred to CITU until all preoperative preparations are fulfilled.

4- Perfusionist should prepare:

- The CPB, cannulas, and grafts/valves.
- Cell saver and cytosorbe.
- Circulatory arrest measures.
- Cerebral perfusion.

5- Anaesthetic ODP should prepared:

- GA and haemostatic medications.
- 2 arterial line, CVC, and PA sheath.
- Machine check, head cooling device.
- TOE.
- Help in patient transfer to the theatre.

6- Scrub team:

- Prepare the surgical equipment.
- Confirm patient identity.
- Surgical theatre preparation.
- Help in patient transfer to theatre.

7- Assign CITU nursing staff to:

- Arrange for blood investigations, cross matching and blood products availability.
- Arrange patient admission on Signal system, print off patient identification wrist band labels.

On arrival at CITU, patient stabilisation and assessment should be started immediately.

The consultant on call should be recontacted to confirm the arrival of the patient and to follow up on the ongoing management plan.

PATIENT ASSESSMENT

1-Patient medical history.

1-Pain assessment: sharp chest and back pain; tearing or ripping is the most common symptom. Pain may also be present
2-in the neck and abdomen.
3-Medical history: Known aortic valve disease, thoracic aortic aneurysm or previous aortic manipulation (inc. cardiac surgery), Marfans (or other connective tissue disorder)
4-Family history of aortic disease

2- Examination

1- Pulse deficit is present in up to 30% of patients with Type A, but it may be absent in some cases.
2- Blood pressure discrepancy between arms (>15 mmHg).
3- Neurological signs, e.g., disturbed conscious level, stroke, seizures, limb weakness, or paraplegia.
4- New aortic regurgitation signs.
5- Features of cardiac tamponade—Becks Triad (muffled heart sounds, hypotension, distended neck veins).
6- Severe hypertension or hypotension.
7- Signs of heart failure and/or cardiogenic shock.
8- Mesenteric ischaemia.
9- Acute renal failure.

INVESTIGATIONS

1- A CT scan has excellent sensitivity for aortic dissection (>95%).
2- MRI is considered the leading imaging technique but has limitations in terms of practicality of use in unwell patients.
3- Trans-thoracic ECHO is up to 80% sensitive and 93-96% specific.
4- Trans-oesophageal ECHO is more sensitive (99%) and may be useful in unstable patients.
5- CXR and ECG
6- Laboratory investigations to consider:

Laboratory Investigation	To look for
Hb	Blood loss, anaemia
WCC	Infection, inflammation
CRP	Inflammatory response
CK	Re-perfusion injury, rhabdomyolysis
Troponin	Myocardial ischaemia
D-dimer	Aortic dissection, PTE
U+Es	Renal failure – new or developing
LFTs	Liver ischaemia, liver disease
Glucose	Diabetes mellitus
Lactate	Bowel ischaemia, metabolic disorder
Blood gas	Metabolic disorder, oxygenation
Group and save or crossmatch	May require transfusion

KEY STEPS OF MANAGEMENT

1. ABC assessment.
2. O2 via facemask.
3. 2x large bore IV cannulas.
4. Left radial arterial line
5. Aggressive BP control

- Haemodynamic targets; - Systolic BP 100-120mmHg
  - MAP <80mmHg
- If the patient develops leg weakness (spinal cord ischaemia), raised BP targets may be required.

Hypertension control

1) Labetalol (first choice)

- Start with slow IV bolus injections – 10mg repeated every 2 minutes to max 200mg
- Also start IV infusion at 15mg/hr and titrate according to the clinical effect (usual dose 10-60mg/hr).
- Concentration 1mg/1Ml.

2) Esmolol

- (onset < 1min, duration 10-20min): 250-500 micrograms/kg bolus over 1-3min, followed by 50 micrograms/kg/min infusion for 4 min and increase infusion up to 200 micrograms/kg/min.

3) Glyceryl trinitrate (GTN)

- 10–200 micrograms/minute, adjusted according to response.

Hypotension

1) IV fluid resuscitation – may need blood products

2) Noradrenaline (hypovolaemic shock).
- Initial dose 0.5 – 1 microgram/Kg/minute. Titrate to response – usual dose 2-12microgram/Kg/min.
- Max dose 30microgram/Kg/min.

3) Dobutamine (cardiogenic shock).
- Initial dose 0.5 – 1 micrograms/Kg/min. Titrate to response - usual dose 2-20micrograms/kg/min.
- Max dose 40micrograms/Kg/min.

6. Analgesia and antiemetic
- IV morphine – 2 mg every 5 minutes (up to 10 mg)
- IV ondansetron 4mg (first line), metoclopramide10 mg (second line).

7. Ensure the anaesthetic room is ready and all the required medications, equipment, blood and blood products (initiating major haemorrhage protocol) and staff are ready.

8. Facilitate the transfer to operating theatre.

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