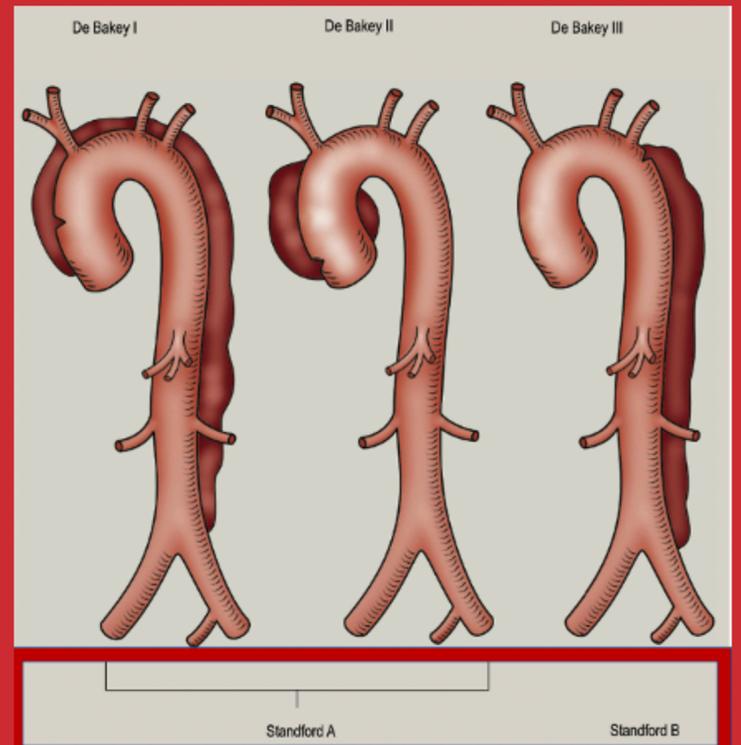


Types of Dissection

Type A	Involves ascending aorta and/or aortic arch. Immediate surgery is required.
Type B (Contact Vascular Team On-Call)	The dissection is distal to the left subclavian artery. Immediate management is BP control. Emergency intervention should be considered if contained rupture, malperfusion or spinal cord ischaemia.
Type Non-A, Non-B	Initial dissection involves aortic arch and threatens to go retrograde (A) or antegrade (B). High risk of transforming to type A and so should be treated as type A
Intramural Haematoma	All intramural haematomas involving the ascending aorta and/or the aortic arch should be treated as Type A.

Overarching Principles of Care: Acute Aortic Syndrome

- Type A Dissection is an acute aortic syndrome (AAS) and is a time critical diagnosis, life threatening, medical emergency.
- Definitive management is surgery.
- Strict BP regulation and reduction in the force of heart contractility is fundamental to patient care.
- An experienced clinician needs to take ownership of referral discussions with local critical care teams, the Cardiothoracic team and potential urgent transfer for definitive care.



Objectives of Management

- Any person with new onset pain consistent with AAS triggers a CT aortogram.
- All patients diagnosed are offered expeditious and appropriate therapy for blood pressure and heart rate / contractility control (Anti-Impulse therapy) as well as analgesia PRN.
- All patients diagnosed with acute aortic dissection on CT aortogram are immediately referred to a specialist aortic centre by a senior ED clinician and managed in ED Resus.
- All people for whom acute aortic dissection is an end of life event (unsuitable for surgery/decline surgery), receive end-of-life supportive care in their local hospital, close to family and friends.

PRINCIPLES OF CARE

ACUTE AORTIC DISSECTION IS A TIME CRITICAL DIAGNOSIS

Stabilisation

Anti-impulse therapy and analgesia is critical.

Time-critical patient transfers

Category 2 ambulance with suitable qualified medical escort.

(Rarely, air ambulance)

Do not stop anti-impulse therapy during transfer.

Sudden onset chest, back or abdominal pain worst in severity at onset - often described as "tearing" or "ripping" in nature. Collapse

Clinical features may include: pulse deficit, haemodynamic compromise, new aortic regurgitation.

Aortopathies: Marfan syndrome, Loeys-Deitz Syndrome, Vascular Ehler-Danlos, Turners Syndrome, Large vessel vasculitis

Family History of aortic disease

Known aortic valve disease

Recent aortic procedure

Thoracic aortic

dilatation/aneurysm

Aortitis

ANTI-IMPULSE THERAPY PROTOCOL

First Line - IV Labetalol & Analgesia

Systolic BP target 100 - 120 mmHg < 30mins

Heart Rate target 60 - 80 bpm < 60mins

STEP (1) BOLUS INJECTION - 0.25mg/kg slow IV bolus over 5 mins.

Central conc. 5mg/ml (Neat) or Peripheral conc. 1mg/ml conc.



STEP (2) LOADING INFUSION - 20mg over 15 mins.

If central access available run 5mg/ml (Neat) at rate: 16mls/hr for 15 mins

If only peripheral access available Peripheral conc. rate: 80mls/hr for 15 mins



STEP (3) Adjust Infusion to target parameters above.

Maximum Central conc. rate: 24mls/hr

Maximum Peripheral conc. rate: 160mls/hr

If remains hypertensive / tachycardic following 1st line therapy (or beta-blockade contraindicated e.g. Severe AR, Asthma) discuss with specialist receiving aortic centre and consider calcium channel blockade (Diltiazem, Verapamil) or 2nd line vasodilator (GTN / Nicardipine)

IV GTN: 10 -200micrograms/minute.

IV Esmolol: 250-500micrograms/kg bolus over 5 mins. Followed by 50micrograms/kg/min infusioun for 4 mins to maximum of 200micrograms/kg/min

IV Diltiazem: 0.25mg/kg bolus. Followed by 5mg/hour infusion to maximum 15mg/hr.

Unopposed vasodilation will increase LV contractility and aortic shear forces and so the sole use of vasodilators is not recommended.

ADVICE FOR ED / CRITICAL CARE TEAMS

- **Rapid diagnosis following high index of suspicion - whole Aorta and Carotid CT (see below).**
- **Involvement of most senior ED doctor and move patient to resus.**
- **Emergency referral to cardiothoracic surgical team from senior experienced clinician.**

- **Wide bore intravenous access (16G or greater) right arm and right radial / brachial arterial line**
- **Control of hypertension and shear forces (ANTI-IMPULSE THERAPY)**
- **Analgesia Administration - Morphine Sulphate 2-5mg IV every 5 PRN titrated to effect, then Morphine PCA 1mg IV bolus 5 min lockout. Regular Paracetamol. Regular anti-emetic.**

- **Urinary catheter - Target urine output 0.5ml/kg/hr**
- **Any outstanding investigations subsequently received should be communicated.**
- **Patient to remain NBM until destination management confirmed**

ADVICE FOR RADIOLOGY

- **Gold Standard expectation is an ECG-gated CT-scan or a CT-scan using fast scan protocol (best possible scan, preferably 2mm or thinner cuts to facilitate reconstruction)**
- **Cannula should ideally be placed in right arm (to avoid arch vessels artefacts)**
- **Scan from neck (common carotid arteries) to groins (common femoral arteries) at the same setting without moving the patient out of the scanner or delaying completing the scan.**
- **If aortic dissection is diagnosed: make images immediately available to aortic centre.**

ADVICE FOR TRANSFERS

- **Transfers are time-critical and an emergency ambulance transfer should be requested – AAD PATIENTS ARE CRITICALLY ILL AND HAVE A LIFE THREATENING CONDITION THAT MAY DETERIORATE RAPIDLY AND WITHOUT WARNING.**
- **PATIENTS MUST HAVE A SUITABLY TRAINED MEDICAL PRACTITIONER TRANSFER WHO IS CAPABLE OF MANAGING ACUTE CVS INSTABILITY, AIRWAY MANAGEMENT, ANALGESIA, VASOPRESSOR / INOTROPIC SUPPORT AND SUDDEN DETERIORATION WITHOUT WARNING.**
- **DO NOT STOP ANTI-IMPULSE THERAPY DURING TRANSFER!**
- **An arterial line should be inserted as above. Secure all lines and give analgesia / antiemetic prior to transfer.**
- **Consider air ambulance if remote area with estimated transfer time of >2-3 hours.**
- **Patients should not travel with blood products unless already commenced.**
- **Inform the receiving hospital upon patient's departure and provide an estimated time for arrival (ETA), if possible.**



Acute Contact Information

Main Switchboard: 01315361000

Cardiothoracic Surgical Registrar Bleep Number: 1682 (Ext. 21076)

Cardiothoracic Anaesthesia / Intensive Care Registrar Bleep Number: 1669

CTICU / Ward 111

Direct Line: 0131 242 1114 / 1111

For further acute guidance, contact on-call Consultant Cardiothoracic Anaesthetist / Intensivist or on-call Consultant Cardiothoracic Surgeon through switchboard.



Non-Emergency Contacts

**Lead Consultant Cardiothoracic Aortic Anaesthetist
Dr. Matthew Stagg (Matthew.Stagg@nhs.scot)**

**Lead Consultant Aortic Surgeon
Mr Vincenzo Giordano (Vincenzo.Giordano@nhs.scot)**

**Royal Infirmary of Edinburgh
51 Little France Crescent
Edinburgh
EH16 4SA**

(Note: the Royal Edinburgh Hospital EH10 is a psychiatric facility)