

Management of Acute Type B Aortic Dissections Guideline

Early medical management:

Aggressive BP control, analgesia and anti-emetics

Haemodynamic targets (initial)

- Systolic BP 100-120 mmHg
- MAP <80 mmHg
- Targets should be changed ONLY after consultation with Vascular team

If patient develops leg weakness, the Vascular surgeon and Vascular anaesthetist must be contacted immediately. **Potential** interventions for spinal cord ischaemia

- Increasing target BP to avoid potential spinal cord infarction
- Emergency CSF drain
- Repeat CT or MRI imaging

Analgesia

- **Morphine** (1-10mg) IV titrated to effect

Then

- **Morphine PCA** 1mg bolus 5 min lockout

*If the patient has **renal impairment**, morphine can be replaced with **fentanyl** 10 microgram bolus 5 min lockout*

- Regular **Paracetamol** (unless contra-indications)

Anti-emetics

- **Ondansetron** 4mg IV every 8 hours
- Supplemental cyclizine 50mg IV every 8 hours and metoclopramide 10mg IV every 8 hours may be used

BP control

Intravenous therapy

1. **Labetalol** (first choice)
 - a. IV bolus – 10mg slow IV injection boluses at 2 minute intervals to a usual maximum of 200mg
 - b. IV infusion
 - i. Concentration 5mg/ml for CVC use OR 1mg/ml for PVC use
 - ii. Dose – titrated to clinical effect but often 10-60mg/hour
2. **Nicardipine** (second line in addition to labetalol, or first line if contra-indications to beta-blocker)
 - a. IV infusion (change IV infusion site every 12h if peripherally administered)
 - i. Concentration 25mg made up to 250ml (5% glucose) = 100micrograms/ml
 - ii. Dose – titrated to clinical effect
 - iii. Start at 50ml/hour (5mg/hour). The rate may be increased every 10 mins by 25ml/hour to a maximum of 150ml/hour (15mg/hour).
 - iv. Once target BP is achieved reduce dose gradually, usual maintenance dose 2-4mg/hour

Critical Care Guidelines

3. **Hydralazine** (third line)
 - a. IV bolus – 5mg slow IV injection bolus at 20 minute intervals to a usual maximum of 20mg
 - b. IV infusion
 - i. Concentration 60mg made up to 60ml (0.9% sodium chloride) = 1mg/ml
 - ii. Dose – titrated to clinical effect
 - iii. Start at 3ml/hr (50micrograms/min). The rate may be increased every 10 mins by 3ml/hour to a maximum of 18ml/hour (300micrograms/min).

Oral therapy – Start as soon as possible (Day 1 unless contra-indicated)
Titrate first line drug to maximum tolerated dose before introducing next line drugs

1. **Bisoprolol** (first choice)
 - a. 2.5-20mg once daily
2. **Amlodipine** (second line in addition to bisoprolol, or first line if contra-indications to beta-blocker)
 - a. 5-10mg once daily
3. **Doxazosin** (third line in addition to bisoprolol and amlodipine)
 - a. 1-16mg once daily
4. **Hydralazine** (fourth line in addition to bisoprolol, amlodipine and doxazosin)
 - a. 10-25mg four times daily

NB ACE Inhibitors and diuretics should be avoided initially while the kidneys are at risk.

References

- Curran MP, Robinson DM, Keating GM. Intravenous nicardipine: its use in the short-term treatment of hypertension and various other indications. *Drugs*. 2006;66(13):1755–82.
- Dade J et al. UKCPA Critical Care Group. Minimum infusion volumes for fluid restricted critically ill patients. 4th Ed. V4 2012. Accessed 4.2.15 via <http://www.ukcpa.net/groups/critical-care/documents/?category=71>

Title: Management of Acute Type B Aortic Dissection Guideline	
ID: MATBADGv1.20160104	Authors: M Syed A Nimmo O Falah C Moores M Dunn K Kefala C Hannah M Naysmith
Category:	Document Version: 2
Status Draft/Final: Final	Review Date: Feb 2022
Last reviewed: June 2020	Reviewed by : A Gibson, K Kefala, A Nimmo.
Authoriser: QIT, Vascular Surgery & Anaesthesia	Date Authorisation: Feb 2016
Date added to Intranet: Oct 2015	
Key words: Aortic Dissection	

Think DISSECTION

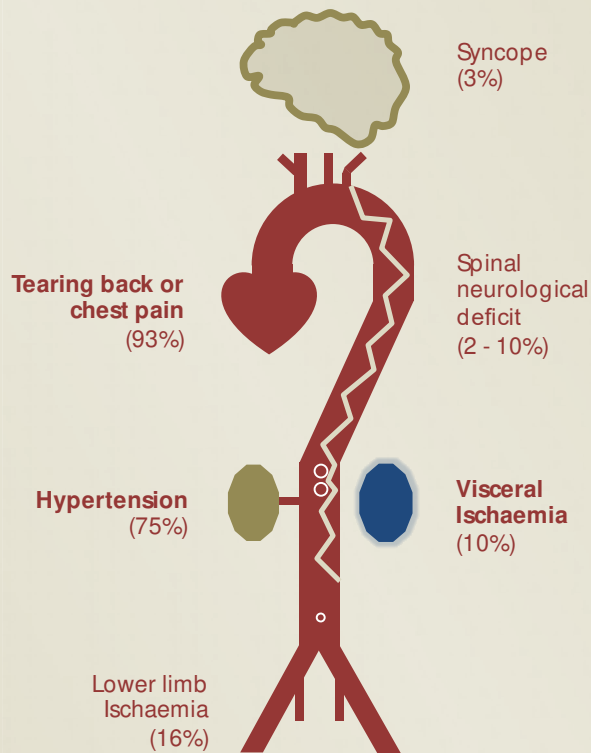
The Management of Acute Type B Aortic Dissections

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Acute aortic dissection is characterised by a tear in the muscular layer of the aorta resulting from hypertension. If left untreated, it can result in significant co-morbidity.

Presentation



Hypotension may be due to myocardial ischaemia, tamponade, aortic root incompetence, or an aortic bleed. These warrant **urgent investigations**.

Investigations

FBC, Coag Screen, d-dimer, U&E, LFT, Lactate, G&S

ECG

Portable CXR
CT Aorta Thorax and Abdomen

URGENT

TYPE

B

[Distal to left subclavian artery]

TYPE

A

[Involving the ascending aorta]

Urgent Cardiothoracic Opinion [bleep: 1682]

Urgent Vascular and Critical Care Opinion [bleep: 5198]

Medical

Analgesia + Antiemetics
Morphine 1 – 10mg IV;
Morphine PCA 1mg/ml; 5min lock;
Ondansetron 4mg IV or Oral.

Blood Pressure Control

[1st line] **Labetalol** 20mg IV +
Labetalol 2mg/min IV infusion

[2nd line] **GTN** 1ml/hr IV infusion +
Titrate by 1mg/min every 15min

[If intolerant to β -blocker]
Verapamil 5-10 mg IV over 2min \pm
Repeat 10mg IV after 30min

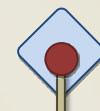
[!] GTN without β -blocker causes tachycardia

[!] Do not use β -blocker with verapamil –risk of heart block

[!] Check the BNF for contra-indications before administering any medications

[!] For further BP control, seek medical advice

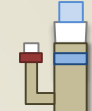
Monitoring



ECG Rhythm



Invasive BP



Urinary Catheter

Urgent Critical Care opinion regarding Level 2 bed (HDU)

Systolic BP target: **100 -120mmHg**
MAP target: **<80mmHg**
Heart rate target: **50 –60 bpm**
Urine output target: **0.5 mg/kg/hr**

Intervention

Persistent **pain**

Aneurysmal **dilatation** >4cm

End organ or Limb **ischaemia**

Retrograde dissection to ascending aorta

Long-term management

Target **BP** 120/80 mmHg

Repeat CT before discharge (usually at 48 hours)

Follow-up CT at 3, 6 and 12 months.

Further Reading

Nienabar CA et al. **Randomised comparison of strategies for type B aortic dissections**. The INvestigation of STEnt grafts in Aortic Dissection (INSTEAD) trial. *Circulation*. 2009; 120: 2519 - 2528.