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

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

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Think DISSECTION

The Management of Acute Type B Aortic Dissections

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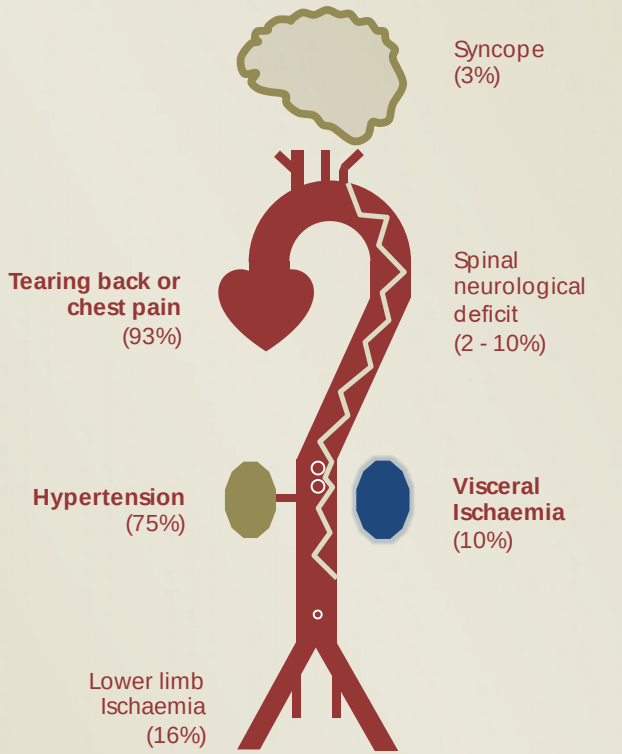
Acute aortic dissection is characterised by a tear in the muscular layer of the aorta resulting from hypertension. If left untreated, it can result in significant co-morbidity.

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 [#6440] and Critical Care [bleep: 5198] Opinion

Medical

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

Blood Pressure Control

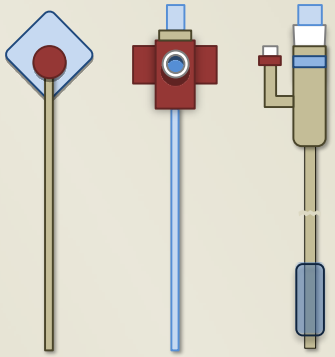
[1st line] **Labetalol** 20mg IV + Labetalol 2mg/min IV infusion

[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 ± 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.