Aortic Aneurysm/ Dissection

- ABCs
- Oxygen per nc
- Get EKG (R/o MI)
- Two large bore IV's
- BP in both arms
- Bilateral radial & Femoral pulses

- Target Map: 65-75
- Target Heart rate: 50- 60
- Target SBP: 100- 120

(1) Heart rate > 60 SBP > 120

Yes

- Esmolol 250 – 500 mcg/kg/min bolus over 1 minute, then 50 mcg/kg/min, titrate to effect.

or

- Labetalol 10 -20 mg bolus over 1 minute, then 0.5-2 mg/min gtt to total of 300 mg

or

- Cardene : Initiate at 50mL/hr (5.0mg/hr), may be increased by 25 mL/hr (2.5mg/hr) every 5 minutes up to a maximum of 150 mL/hr (15.0 mg/hr) (2)

No

- Administer Fentanyl or Morphine for pain prn
- Administer Versed or Ativan for anxiety prn (3)

SBP < 90

Yes

- Infuse NS wide-open x 2 liters, then titrate to maintain a SBP of 90-100
- Infuse 2 units of Packed Blood Cells
- If SBP < 70 after 4 liters NS consider a vasopressor . (4) (5)

No

- Keep patient warm
- Consider Foley cath
- Transfer ASAP

1. For blood pressure control, initial treatment consists of an IV beta blocker to reduce the heart rate below 60 bpm; the associated fall in both blood pressure and the rate will minimize aortic wall stress. Esmolol has advantages in the acute setting, due to its short half-life and ability to titrate to effect.
2. Cardene can be used concurrently with a beta blocker
3. Medicating for pain and anxiety will also help with blood pressure and rate control by reducing the sympathetic drive.
4. Vasopressors of choice are Levophed and NeoSynephrine because of their limited shear forces.
5. Indications for vascular surgical intervention included rupture, aortic expansion (aortic diameter > 5 cm), retrograde dissection into the ascending aorta, malperfusion, (visceral, peripheral) and intractable pain despite optimal medical management.

Aortic Dissection / Aneurysm (Adult)

Goal

Decrease intravascular, intrathoacic and abdominal pressure on great vessels.

Target	
MAP	65-75
HR	50-60
SBP	100-120

Assessment

Bilateral BP in both arms, bilateral pulses - all distal extremities
Observe abdomen for distension or pulsatile mass, gently palpate for pain if no mass

Tearing/ripping pain in back/chest/abd
Neuro assessment for pain and sensation
N/V, anxious, stroke symptoms, paraplegia, pericardial tamponade

Treat per General management
Treat per pain management
Treat for anxiety
Keep pt warm
Prophylactic treatment with zofran to decrease potential of intra-abdominal pressure
2 large bore IV NS with blood tubing (if blood not available use LR)

HR > 60 and/or SBP >120

Esmolol 250-500 mcg/kg/min IV bolus over 1 min, then 50mcg/kg/min IV drip
Titrate to effect to max 300mcg/kg/min
OR
Cardene 5mg/hr IV drip, may increase 2.5mg/hr q 5min to max of 15mg/hr
(may combine with beta blocker if needed)
OR
Labetalol 10-20mg IVB over 1 min, then 0.2-2 mg/min IV drip to max 300mg

SBP < 90

2000cc IV bolus NS or LR
Infuse 2 units PRBC

SBP < 70 after 4 liters IV Fluid

Levophed 8-12 mcg/min IV infusion to regain BP then titration to maintenance dose of 2-4 mcg/min IV infusion
OR
Neosynephrine 40-60mcg/min up to 180mcg/min to regain BP then titrate to maintenance dose of 40-60mcg/min

1. Esmolol has advantages of short half life and ability to titrate to effect
2. Levophed and neosynephrine have limited shear force
3. Neosynephrine can cause bradycardia, contraindicated for bradycardic patient

Esmolol 2500mg/250ml NS or D5W 10mg/ml	
Pt weight in kg	50 mcg/kg/min dose in ml/hr
50kg	15ml/hr
60kg	18ml/hr
70kg	21ml/hr
80kg	24ml/hr
90kg	27ml/hr
100kg	30ml/hr

Nicardipine (Cardene) 25mg/250ml NS or D5 0.1mg/ml	
mg/hr	ml/hr
5	50
7.5	75
10	100
12.5	125
15	150

Labatolol 200mg/100ml	
mg/min	ml/hr
0.2	6
0.4	12
0.6	18
0.8	24
1.0	30
2.0	60

Levophed 4mg/250ml D5W 16mcg/ml	
mcg/min	ml/hr
2	7.5
4	15
6	22.5
8	30
10	37.5
12	45

Neosynephrine 10 mg/250ml NS or D5W 80mcg/ml	
50mcg/min = 38ml/hr	60mcg/min = 45ml/hr
70mcg/min = 53ml/hr	80mcg/min = 60ml/hr
90mcg/min = 68ml/hr	100mcg/min = 75ml/hr
110mcg/min = 83ml/hr	120mcg/min = 90ml/hr
130mcg/min = 98ml/hr	140mcg/min = 105ml/hr
150mcg/min = 113ml/hr	160mcg/min = 120ml/hr
170mcg/min = 128ml/hr	180mcg/min = 135ml/hr