

**SECTION:** Adult Cardiovascular Emergencies

**PROTOCOL TITLE:** Medical – Abdominal Aortic Aneurysm/  
Dissection

*(Aortic Dissection and AAA)*

**REVISED:** 06/2015

**OVERVIEW:**

Aortic Aneurysms (AA) are a degenerative and progressively slow process where the walls of the aorta weaken and expand due to the systemic pressures of the circulatory system. The formation of aneurysms can be attributed to atherosclerosis, infection, trauma, hypertension, and inherited disorders. AAs generally form in the abdominal section of the aorta and present with weak or absent pulses in the lower extremities, cooler temperatures in the lower extremities, a central abdominal mass that can sometimes have pulsations, and abdominal and/ or back pain. If the aneurysm ruptures, chance of survival is very low and requires immediate surgical intervention. Aortic Dissections usually occur in the thoracic cavity when the aortic intima is torn away, exposing the media layer. The pulse pressure from the systemic circulation then begins to dissect the two layers of the aortic wall and creates a false lumen or pouch in the wall of the aorta. Conditions associated with the formation of an aortic dissection include: hypertension, Marfan’s Syndrome, aortic valve abnormalities, immune disorders, atherosclerosis, and patients in the third trimester of pregnancy. When left untreated, about 33% of patients die within the first 24 hours, and 50% die within 48 hours. The 2 - week mortality rate approaches 75% in patients with undiagnosed ascending aortic dissection.<sup>1</sup>

HPI	Signs and Symptoms	Considerations
<ul style="list-style-type: none"> <li>• Age</li> <li>• Medications</li> <li>• Viagra®, Levitra®, Cialis®</li> <li>• PMH (MI, Angina, DM, HTN)</li> <li>• Allergies (ASA, Morphine)</li> <li>• Onset</li> <li>• Quality (crushing, sharp, dull, constant, etc.)</li> <li>• Region / Radiation / Referred</li> <li>• Severity (1 - 10)</li> <li>• Time (duration / repetition)</li> </ul>	<ul style="list-style-type: none"> <li>• Weak / absent pulses in lower extremities</li> <li>• Cooler temperatures in lower extremities</li> <li>• Central abdominal mass with possible pulsations</li> <li>• Anterior chest / upper back pain</li> <li>• “Tearing” sensation in back or chest</li> <li>• Tachycardia</li> <li>• Hypertension</li> </ul>	<ul style="list-style-type: none"> <li>• Trauma vs. Medical</li> <li>• Angina vs. MI</li> <li>• Pericarditis</li> <li>• Pulmonary embolism</li> <li>• Asthma / COPD</li> <li>• Pneumothorax</li> <li>• GI reflux, hiatal hernia</li> <li>• Esophageal spasm</li> <li>• Chest wall injury or pain</li> <li>• Pleural pain</li> </ul>

<sup>1</sup> Emedicine: Emergent Management of Acute Aortic Dissection  
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# AORTIC DISSECTION & AAA

	EMR	EMT	A	I	P
1. Perform general patient management.	•	•	•	•	•
2. Support life-threatening problems associated with airway, breathing, and circulation.	•	•	•	•	•
3. Administer oxygen to maintain <u>SPO<sub>2</sub></u> 94 - 99%	•	•	•	•	•
4. Obtain VS in both arms and assess distal pulses.	•	•	•	•	•
5. Place the patient on a monitor and obtain (BLS)/interpret (ALS) <i>12 lead ECG</i> ; Refer to appropriate <i>Cardiac Patient Care Protocol</i> as needed. <i>DO NOT administer ASA if acute MI is present in conjunction with suspected AAA or aortic dissection.</i>		•	•	•	•
6. Establish two IV of normal saline and titrate to a systolic B/P > 90 mmHg. Do not delay transport to establish second IV.			•	•	•
7. Administer <u>FENTANYL</u> 1mcg / kg IN / IV / IM or <u>MORPHINE</u> 2.5 - 5.0 mg IV / IM as needed, per <i>Pain Management Patient Care Protocol</i> .				•	•
8. Administer <u>ONDANSETRON</u> (Zofran) 0.1 mg / kg slow IVP as needed per <i>Medical - Nausea and Vomiting</i> protocol.				•	•
9. Consider <u>LEVOPHED</u> Infusion 0.1-0.5 mcg / kg / minute for hypotension. <b>Titrate to systolic B/P &gt; 90 mmHg</b>				•	•
10. Transport and perform ongoing assessment as indicated.		•	•	•	•

### PEARLS:

1. Treatment goals are to maintain systolic BP 90 -120 mmHg and heart rate between 50 - 80 bpm.
2. Do not delay transport for any reason if possible, interventions should be done enroute to appropriate facility.
3. Abdominal mass may not be palpable in obese patients.
4. Physical examination may reveal a murmur of aortic insufficiency.
5. Type A dissection occurs in the ascending aorta, while a Type B dissection occurs just distal to the left subclavian artery.

## Norepinephrine (Levophed™) Dose/Drip Chart (using 10 drop set)

Based on 4mg NE/250mL NS and **ADULT DOSING RANGE** starting at 0.1-0.5 mcg/kg/minute.  
Then, titrate to desired response.

Weight Range	mcg/min range		mL/min range		drops/min range	
	min	max	min	max	min	max
45 - 50 kg	4.50	25.00 →	0.28	1.56 →	3	16
51 - 55 kg	5.10	27.50 →	0.32	1.72 →	3	17
56 - 60 kg	5.60	30.00 →	0.35	1.88 →	4	19
61 - 65 kg	6.10	32.50 →	0.38	2.03 →	4	20
66 - 70 kg	6.60	35.00 →	0.41	2.19 →	4	22
71 - 75 kg	7.10	37.50 →	0.44	2.34 →	4	23
76 - 80 kg	7.60	40.00 →	0.48	2.50 →	5	25
81 - 85 kg	8.10	42.50 →	0.51	2.66 →	5	27
86 - 90 kg	8.60	45.00 →	0.54	2.81 →	5	28
91 - 95 kg	9.10	47.50 →	0.57	2.97 →	6	30
96 - 100 kg	9.60	50.00 →	0.60	3.13 →	6	31
101 - 105 kg	10.10	52.50 →	0.63	3.28 →	6	33
106 - 110 kg	10.60	55.00 →	0.66	3.44 →	7	34
111 - 115 kg	11.10	57.50 →	0.69	3.59 →	7	36
116 - 120 kg	11.60	60.00 →	0.73	3.75 →	7	38
121 - 125 kg	12.10	62.50 →	0.76	3.91 →	8	39
126 - 130 kg	12.60	65.00 →	0.79	4.06 →	8	41

PEDIATRIC DOSE RANGE: 0.05-0.1 mcg/kg/minute. Titrate to desired effect.  
Maximum dose: 2mcg/kg/minute

Protocol

2-5

Continued

**AORTIC DISSECTION & AAA**

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