Approach to a case of Hypotension and Shock

Common Categories of Shock

1. **Cardiogenic**
2. **Hypovolemic**
3. **High CO with decreased SVR (Warm Shock)**

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4. Neurogenic- Major brain or spinal injury-
5. Hypoadrenal- Refractory Shock
6. Obstructive- Tamponade, Pulmonary Embolism, Tension Pneumothorax

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Venous Oxygen saturation	Low	Low	High

Common Causes of Shock

Cardiogenic	Hypovolemic	High CO with decreased SVR
MI	GI Losses	SIRS
Arrhythmias	Heat stroke	Sepsis
Myocarditis	Hemorrhage	Pancreatitis
		Anaphylaxis
Tamponade	Trauma	Thyrotoxicosis (storm)
Injuries	Burns	Burns
		AV Shunts
		Liver Failure

Steps in rapid initial assessment

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- Start resuscitation simultaneously

Goal of Resuscitation ?

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- Re establish adequate tissue perfusion to prevent or minimize end- organ injury

Resuscitation is different in each category

Cardiogenic	Hypovolemic	High CO with decreased SVR
Treatment for Ischemia	IV Fluids	Antibiotics
Ionotropes	Colloids	EGDT*
After load reduction		Low dose steroids
		Activated Protein C

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  - Core temperature
  - Cold or warm peripheries
  - Pulse- bounding or low volume
  - Capillary filling- slow/ rapid
  - Raised JVP, S3 and basal crepts in cardiogenic
  - Respiration
  - Urine Output

Terms in Assessment/ Treatment

- **APACHE II Score**- Acute Physiology and Chronic Health Evaluation II (with points for age and co-morbidity)
- **Glasgow Coma Score**
- **ACLS-** Advanced Cardiac Life Support
- Old acronym- **ABC** (still valid)

General Features of Shock

- Hypotension (SBP < 100)
- Tachycardia (>100)
- Cold clammy skin (Low CO)
- Rapid shallow respiration
- Drowsiness, confusion and irritability
- Oliguria (<30ml/hr)
- Elevated / reduced CVP
- Multi- organ failure

Steps in Resuscitation

- Airway and Respiration
- Circulation
- Early Goal Directed Therapy (EGDT)
- Multisystem organ support

32 year old young lady, on NSAIDS

- Dyspepsia X 5 days
- **Dark tarry stools X 2 days**
- Profound weakness X 2 days
- Syncope this morning
- Cold clammy and sweating, Poor capp refill
- BP 70/50 mm Hg lying; 60/ 35 mm standing
- Pulse 140/ min, thready
- Resp- 36/ min
- Pallor

40 year busy doctor, HT

- **Chest Pain X 1 Hour**
- Sweating, palpitations and breathlessness

- Restless, sweating, cold and clammy
- BP 100/76 mm, Pulse 110/ min, low volume
- Resp- 26/ min, prefers to be propped up
- Poor capillary refill
- JVP/ CVP raised

45 year old diabetic male

- **Fever, cough and rusty sputum X 2 days**
- Weakness X 1 day
- No urine X12 hours

- Temp- 40 degrees C, warm extremities
- Pulse 120/ min, good volume
- BP 108/30 mm, Resp rate 40/ min
- Cyanosis +, JVP not raised
- Capp refill good

Take Home Messages

- Shock is an Emergency. Assessment and resuscitation go hand in hand because time is critical
- Hypotension is a late feature of shock. Do not wait for hypotension before starting treatment

- Clinical setting and simple examination of MAP, pulse pressure, heart rate, JVP and nail cappillary bed refill can give vital clues. Tachypnea and sweating should also make you alert.

Take Home Messages

- Urine output is a good indicator of renal (tissue) perfusion
- Goal of resucitatation is to re establish adequate tissue perfusion to prevent or minimize end-organ injury