

# ***SHOCK***

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- Place the victim in shock position
- Keep the person warm and comfortable
- Turn the victim's head to one side if neck injury is not suspected



ADAM.

**NORAH ALSAIF**

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## **SHOCK:**

REDUCTION OF EFFECTIVE TISSUE PERFUSION (BLOOD SUPPLY) LEADING TO CELLULAR AND CIRCULATORY DYSFUNCTION

## **SHOCK SYNDROMES:**

TYPE	CAUSE	MANAGEMENT	EXAMPLE
<b>HYPOVOLEMIC SHOCK</b>	<b>BLOOD VOLUME PROBLEM</b>	<b>-AIRWAY &amp; BREATHING -CONTROL BLEEDING -ELEVATE LOWER EXTREMITIES -AVOID TRENDELENBURG</b>	<b>-BURNS -DIARRHEA -VOMITING -DIURESIS -SWEATING</b>
<b>CARDIOGENIC SHOCK</b>	<b>BLOOD PUMP PROBLEM</b>		

<b>OBSTRUCTIVE SHOCK</b>	<b>FILLING PROBLEM</b>		
<b>DISTRIBUTIVE SHOCK</b>	<b>BLOOD VESSEL PROBLEM</b>		<b>-SEPTIC SHOCK</b> <b>-ANAPHYLACTIC SHOCK</b> <b>-NEUROGENIC/VASOGENIC</b> <b>ENDOCRINOLOGIC</b>

## SUMMARIZED SCHEDULE

REFERENCE IS: **DAVIDSON'S**

LOW STROKE VOLUME			
TYPE	HYPOVOLEMIC	CARDIOGENIC	OBSTRUCTIVE
DEFINITION	ANY CONDITION PROVOKING A MAJOR REDUCTION IN BLOOD VOLUME	SEVERE MECHANICAL IMPAIRMENT	OBSTRUCTION TO BLOOD FLOW AROUND THE CIRCULATION
EXAMPLE	INTERNAL & EXTERNAL HEMORRHAGE, SEVERE BURNS, SALT & WATER RETENTION	MI, ACUTE MITRAL REGURGITATION	MAJOR PULMONARY EMBOLISM, CARDIAC TAMPONADE, TENSION PNEUMOTHORAX
VASODILATATION			
TYPE	SEPTIC/SIRS	ANAPHYLACTIC	NEUROGENIC
	INFECTION OR OTHER CAUSES OF A SYSTEMIC INFLAMMATORY RESPONSE THAT PRODUCE WIDESPREAD ENDOTHELIAL DAMAGE WITH VASODILATATION, ARTERIOVENOUS SHUNTING, MICROVASCULAR OCCLUSION, CAPILLARY LEAK & TISSUE OEDEMA	INAPPROPRIATE VASODILATATION TRIGGERED BY AN ALLERGEN OFTEN ASSOCIATED WITH ENDOTHELIAL DISRUPTION & CAPILLARY LEAK	CAUSED BY MAJOR BRAIN OR SPINAL INJURY WHICH DISRUPTS BRAIN-STEM AND NEUROGENIC VASOMOTOR CONTROL

- GOALS AND MONITORING:**

- **MAP: MEAN ARTERIAL PRESSURE**
- **CVP: CENTRAL VENOUS PRESSURE**
- **PCWP: PULMONARY CAPILLARY WEDGE PRESSURE**
- **CI: CARDIAC INDEX**
- **SCVO2: CENTRAL VENOUS OXYGEN SATURATION**

**PCWP:** An indirect measure of the left atrial pressure

**sCVO2:** a parameter that reflects the degree of oxygen extraction from the brain and the upper part of the body

## 1) HYPOVOLEMIC SHOCK:

- INITIAL -> CONTROL EXTERNA BLEEDING + RAPID REEXPANTION OF CIRCULATING INTRAVASCULAR BLOOD VOLUME.
- ELEVATE LOWER EXTREMITIES.
- AVOID TRENDELENBURG.
- TWO LARGE BORE IV LINES/CENTRAL LINE (ISOTONIC SALINE)
- RESPIRATORY SUPPORT -> END TRACHEAL INTUBATION TO MAINTAIN ARTERIAL OXYGENATION.

## 2) CARDIOGENIC SHOCK:

- SUPINE, OR HEAD AND SHOULDERS SLIGHTLY ELEVATED.
- Do **NOT** ELEVATE LOWER EXTREMITIES.
- INITIAL -> TREAT 1. RATE 2. RHYTHM 3. BP
  - BRADYCARDIA OR TACHYCARDIA
  - IRREGULAR RHYTHMS
  - BP ~90 MMHG (INCREASE LV FILLING -> ADEQUATE PERFUSION)
  - CARDIAC CONTRACTILITY (INOTROPES): DOBUTAMINE, DOPAMINE.
- KEEP OPEN LINE, MICRO-DRIP SET.
  - CORRECT HYPOGLYCEMIA -> INSULIN.
- TREAT THE UNDERLYING CAUSE IF POSSIBLE.
- RESPIRATORY SUPPORT (ENDOTRACHEAL INTUBATION) -> CORRECT HYPOXEMIA + ACIDOSIS

## 3) OBSTRUCTIVE SHOCK:

- TREAT THE UNDERLYING CAUSE:
  - TENSION PNEUMOTHORAX.
  - PERICARDIAL TAMPONADE.
- ISOTONIC FLUIDS TITRATED TO BP W/O PULMONARY EDEMA.
- CONTROL AIRWAY:
  - INTUBATION.

## 4) NEUROGENIC SHOCK:

- PATIENT SUPINE; LOWER EXTREMITIES ELEVATED.
- AVOID TRENDELENBURG.
- INFUSE ISOTONIC CRYSTALLOID.
- MAINTAIN BODY TEMPERATURE.

## 5) DISTRIBUTIVE SHOCK:

- ANAPHYLAXIS:
  - SUPPRESS INFLAMMATORY RESPONSE:
    - ANTIHISTAMINES.
    - CORTICOSTEROIDS.
  - OPPOSE HISTAMINE RESPONSE:
    - EPINEPHRINE: BRONCHOSPASM & VASODILATION.
  - REPLACE INTRAVASCULAR FLUID:
    - ISOTONIC FLUID TITRATED TO BP ~ 90 MM.

### 6) **SEPTIC SHOCK:**

- **AIRWAYS, BREATHING, CIRCULATION**
- **ASSIST VENTILATION:** OROPHARYNGEAL AIRWAY, ENDOTRACHEAL TUBE, TRACHEOSTOMY + AUGMENT OXYGENATION.
  - **MONITOR:** RR, BLOOD GASES, CXR
- **MONITOR/RESTORE TISSUE PERFUSION:**
  - EXPAND CIRCULATORY VOLUME
  - SUPPORT CVS FUNCTION
- **IDENTIFICATION & ERADICATION OF SEPTIC FOCI**
  - EMPIRICAL ANTIBIOTIC THERAPY (IV)
- **MONITOR/RESTORE TISSUE PERFUSION:**
  - EXPAND CIRCULATORY VOLUME
  - SUPPORT CVS FUNCTION
- **IDENTIFICATION & ERADICATION OF SEPTIC FOCI**
  - EMPIRICAL ANTIBIOTIC THERAPY (IV)
  - REMOVAL OF SOURCE OF INFECTION -> EG: IV CATHETERS, PUS COLLECTIONS, ABSCESS, ETC.
- **SPECIFIC THERAPIES**
  - EG: PROTEIN KINASE C, ANTITHROMBIN, IL-1 ANTAGONISTS, ANTIGOAGULANTS, ANTI-INFLAMMATORY, ETC.

- **SHOCK MANAGEMENT: AVOID VASOPRESSORS UNTIL HYPOVOLEMIA RULED OUT, OR CORRECTED.**
- **VASOPRESSORS:**
  - **DOPAMINE**
  - **VASOPRESSIN**
  - **DOBUTAMINE → ADEQUATE VENTRICULAR PERFORMANCE**
  - **NOREPINEPHRINE → INCREASE ARTERIAL PRESSURE**
- **SQUEEZING PARTIALLY EMPTY TANK CAN CAUSE ISCHEMIA, NECROSIS OF KIDNEY AND BOWEL.**