

## Case Study 1

Frank Abbot is a 28 year old male who was injured in an explosion that occurred in a disused warehouse. The explosion occurred when Frank was mixing chemicals over a naked flame. As a result of the explosion, Frank was thrown back about 2 meters into a brick wall striking his head. Frank has a poor recollection of events but was walking around at the scene when the ambulance arrived.

Agitated and in pain, Frank has the following signs and symptoms;

- Burns to his face and upper third of his chest
  - Singed nasal hairs and beard
  - A moist cough
  - Painful right lower posterior chest wall (possible rib #)
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- HR                    128 irregular
  - BP                    145/95
  - RR                    28
  - GCS                  15/15
  - SpO2                96% (8L O2 via face mask).

Frank is admitted to the surgical unit for management. He has a peripheral intravenous cannula in situ in his left forearm, and is receiving crystalloid fluid at an 8 hourly rate.

### **Problem**

Using a prioritised approach, outline what you need to consider and do for Frank.

## Case Study 2

Ibu Mann, 62 year old, is admitted after having a large anterior wall MI.

### Comparing Mrs. Mann's cardiac results with normal values

Cardiac parameter	Mrs. Mann's result (abnormal values in bold)	Normal range
Heart rate	<b>148 beats/min</b>	60-100 beats/min
Mean arterial pressure	80 mm Hg	70-105 mm Hg
Central venous pressure/right atrial pressure	<b>7 mm Hg</b>	2-6 mm Hg
Mean pulmonary artery pressure	<b>30 mm Hg</b>	10-20 mm Hg
Pulmonary capillary wedge pressure	<b>15 mm Hg</b>	6-12 mm Hg
Cardiac output	<b>3.9 liters/min</b>	4-8 liters/min
Cardiac index	2.6 liters/min/m <sup>2</sup>	2.4-4.2 liters/min/m <sup>2</sup>

- She is receiving GTN 30 mcg/minute and dobutamine 5 mcg/kg/min.
- Admission echocardiogram showed areas of no movement or poor movement of her heart in the anterior area and apical wall of the heart.
- EF is estimated at 15-20%

1. What are your treatment priorities:

Later in the day The cardiologists orders diltiazem to slow her heart rate. This results in the following changes:

- HR 125 beats/min
- MAP 51 mmHg
- CO 2.5 L/min
- CI 3.9 L/min/m<sup>2</sup>

2. What type of shock is she experiencing? What are your treatment priorities? What do you think of the change in vital signs? What needs to be done now?

The cardiologist orders the dobutamine to be increased to 10 mcg/kg/min and to titrate up until CI > 2.4 L/min/m<sup>2</sup>, up to a max dose of 20 mcg/kg/min. Dopamine is also ordered at a dose to keep MAP >60

3. How will you titrate these drips? What will you monitor? What are your treatment priorities?

Holcomb, S. (2002). Helping your patient conquer cardiogenic shock: learning to identify who's at risk and how to intervene when the heart loses its pumping ability. *Nursing*, 32(9), 32cc1-6.

### Case Study 3

Ibu Green is a 70 year old woman admitted to the surgical ward following an emergency appendectomy for a ruptured appendix. She is 82 kg. She has a history of hypertension and type 2 diabetes. Today is the second post operative day and the nurse notes the following:

- Temp 38 C
- HR 98 beats/min
- RR 22/min
- BP 102/76, MAP 85
- Sat 95% on room air
- Ibu Green is more restless

1. What are your nursing priorities? What are you thinking? What are your concerns? What will you do?
2. Ibu Green is transferred to the ICU. BP 84/54, MAP 64, HR 105. Fluid resuscitation is ordered and a central line is inserted. What will you do? How will you monitor?
3. She has now received 4 L of normal saline. BP 88/40, MAP 56, hypoactive bowel sounds, cool, clammy skin. UO 40 m./hr. Lab work is the following:
  - WBC increased to 30,000
  - BUN, Creatinine, liver function tests are elevatedWhat treatment do you anticipate next?
4. Norepinephrine is ordered to be titrated to a MAP >65. How will you monitor?
5. She continues to worsen and RR is now 34 breaths/min. Sat is 89% on 4L. She has crackles in both lower lobes. Below are additional labs:
  - ABG: pH 7.26, PaCO<sub>2</sub> 51, PaO<sub>2</sub> 60, HCO<sub>3</sub> 24
  - Lactate 4.5 mmol/LWhat does her labs tell you? What are your treatment priorities? What will you do FIRST? How will you monitor?

DellaCroce, H. (2009). Surviving sepsis: the role of the nurse. *RN*, 72(7), 16-21.