**Process Discussion: Shock**

Physical shock can have many causes. Healthcare professionals know that this is a condition that is life threatening and understand the need to act swiftly and competently in the management of a patient suffering with shock. Shock is significantly characterized by a lack of appropriate tissue perfusion that can result in cell death. This document is an explanation of the stages of shock. It is devised for people with a medical background who have knowledge of emergency procedures and disease processes. The body depends on adequate blood perfusion to deliver oxygen and nutrients to vital organs and to support cellular function. When this process is disrupted, inadequate perfusion can affect all body systems and cause a domino effect and a subsequent shock state of an affected person. While there are different classifications of shock, certain physiologic responses are common to all types. Shock is believed to happen in stages that progress as the patient becomes more critical. These stages are (1) the compensatory stage, (b) the progressive stage, and (c) the irreversible stage. The sooner that shock is recognized and treated, the greater chance of survival the patient has.

**Compensatory Stage**

Important things to consider after initial recognition of shock symptoms are the blood pressure and heart rate. In the compensatory stage, the blood pressure will be normal. It is during this stage that the "fight or flight" body response of the sympathetic nervous system is manifested. During this response, the body takes away blood from "non-essential" body systems such as the gastrointestinal tract and kidneys to ensure that vital organs such as the brain and heart are well perfused. Heart rate and respirations are increased, and kidney function decreases. The following table shows what happens during this stage.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Blood pressure** | **Acid-Base Balance** | **Heart Rate** | **Respirations** | **Orientation** | **Skin** |
| Normal | Respiratory alkalosis | Increased | Increased | Confused | Cool |

The increase of respirations, or hyperventilation, can raise the blood pH and thus create a situation where the patient goes into respiratory alkalosis. Basically, this is caused by a drop of carbon dioxide in the blood below normal limits. This condition can cause confusion for the affected person. It is important to recognize shock at this state and initiate treatment. Doing so usually has a good patient outcome. Management usually involves addressing the underlying cause and maintaining adequate perfusion to tissues. This is achieved with fluid replacement and medications.

**Progressive Stage**

The second stage of shock is when the body can no longer compensate for the blood pressure to allow for adequate perfusion of vital organs. It is during this stage that the mean arterial pressure, or MAP, decreases. According to the Health Guide Info website, the mean arterial pressure "expresses a relationship between the systolic and diastolic pressures. Its significance lies in the fact that it reflects the perfusion pressure, or the force that enables the blood in circulation to supply the vital organs of the body with oxygen and important nutrients." Due to this deficit, patients will become hypotensive. It is at this stage that all systems will show signs of poor perfusion. The heart becomes less effective and fluid leakage from the capillaries causes general edema. This is when the domino effect takes over and the inflammatory response is activated causing the body to struggle to return to normal. The lungs are affected and the individual is at risk of going into acute respiratory distress syndrome, or develop pulmonary edema. There is an inadequate blood supply that can lead to abnormal heart rhythms and poor perfusion to the heart. Because of this, the patient is at risk of having a heart attack. The following table depicts some of the symptoms during this stage.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Blood pressure** | **Acid-Base Balance** | **Heart Rate** | **Respirations** | **Orientation** | **Skin** |
| Low | Metabolic acidosis | Tachycardia (high heart rate) | Increased—shallow | Sluggish/confused | Bruised, discolored |

Also, as blood flow to the brain decreases, confusion can be followed by loss of consciousness. Acute renal failure may also develop, and urinary output drastically decreases. A combination of low blood pressure, slow blood flow, and generalized system malfunction can put the patient at risk of disseminated intravascular coagulation during which systemic clotting and bleeding happen at the same time. Bruises can be seen in the skin. General treatment of shock includes intravenous fluids, nutrition, use of antacids and histamine-2 blockers. At this stage, patient needs very close monitoring and more aggressive treatment.

**Irreversible Stage**

The irreversible state is the point of no return. At this stage, the patient experiences organ damage that is severe and irreparable. At this point, there is no hope for survival of the affected individual. Blood pressure is low and there is renal and liver failure. The body becomes toxic. In spite of mechanical efforts, oxygenation will remain poor as well as tissue perfusion. There is system and organ failure. It is expected that a patient at this stage will be under mechanical support for the respiratory and cardiac systems. Continued prescribed treatment is provided along with comfort measures. The following table depicts characteristics during this stage.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Blood pressure** | **Acid-Base Balance** | **Heart Rate** | **Respirations** | **Orientation** | **Skin** |
| Mechanical support | Profound acidosis | Arrhythmia or no heart rate | Mechanical support | Unconscious | Yellowish |

The patient may have irregular heart rate, and may develop profound acidosis. Patient may appear jaundiced due to liver failure. Patient would be unconscious at the irreversible stage. Patient would require dialysis and is no longer producing urine.

Treatment of shock includes fluid replacement, medications and nutritional support. Stage of shock primarily determines course of action and aggressiveness in treatment. Proper identification of shock state in individuals can be the difference between life and death. While the preceding symptoms and characteristics are not all inclusive, the major body systems were explained.

**Works Cited**

"Mean Arterial Pressure Meanings: What Are They?" *Health Guide Info*. Ed. Diana Cooper. N.p., 02 Jan. 2011. Web. 15 Oct. 2014.

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