

SHOCK

Shock is a precipitous drop in blood pressure which can lead to organ failure. This can either occur because there is not enough blood (hemorrhage or massive vasoconstriction), not enough water (dehydration) or inflammation (which causes leaky blood vessels).

What can cause shock?

*Loss of Blood or Fluid from the body

- **Hemorrhagic shock** = Loss of blood by injury or trauma
- **Hypovolemic shock** = dehydration by sweating, vomiting, diarrhea or urination. Many clinicians refer to a patient in shock after blood loss as in hypovolemic shock (rather than calling it hemorrhagic shock)

Diabetic ketoacidosis may result in hypovolemic shock if polyuria continues unabated for many hours. High blood glucose is dangerous for the body. The kidneys excrete the glucose dissolved in water. Therefore, water loss is a necessary part of ridding the body of excess glucose.

*Inflammatory response to infection or foreign proteins (allergies)

Both anaphylactic shock, and septic shock, are due to systemic inflammation. Inflammation causes capillaries to become “leaky” and extra fluid seeps into the area of damage/infection. If the allergen or the pathogen is in the blood stream, inflammation can become body-wide (systemic). In this case, leaky capillaries allow too much fluid to leave the blood vessels, and blood pressure drops.

- **Septic shock** = Fluid shifting into the tissues caused by bacterial endotoxins or superantigens. Sepsis (bacterial infection in the blood) can lead to massive inflammation throughout the body’s vascular. Fluid leaves the extra-leaky blood vessels and pressure drops.
- **Anaphylactic shock** = Fluid shifting caused by massive inflammation to a systemic allergen, such as bee sting toxin, peanuts, or drug allergies.

*Inadequate pumping or regulation of blood vessel constriction/dilation

- **Cardiogenic shock** = The heart stops pumping effectively (e.g. fibrillation) and blood pressure rapidly drops.
- **Vasovagal response** = after a traumatic/anxiety-provoking experience, sympathetic stimulation may suddenly drop off so rapidly that cardiac output is not high enough to remain standing. Fainting may occur. This is sometimes called psychological shock.