ICU Facts

Critical Illness

Common Reasons for ICU Care

There are many reasons a patient may need care in an Intensive Care Unit (ICU). This brochure attempts to explain some of the more common problems and conditions that may bring a patient to an ICU or that may develop while a patient is under ICU care.

Shock

When a patient is in shock, the body’s organs don’t get enough oxygen and blood pressure for the patient to function normally. Four of the most common reasons for shock are:

- **Hypovolemic Shock** – severe dehydration or massive fluid loss, which is treated with intravenous fluids or blood transfusions.

- **Cardiogenic Shock** – cardiac or heart failure, which is treated with medications or devices to improve heart function.

- **Septic Shock** – severe infection resulting in organ failure, which is treated with intravenous fluids and medications to increase blood pressure and treat infection.

- **Systemic Inflammatory Response Syndrome (SIRS)** – can be caused by massive trauma, severe infection or some other medical conditions such as pancreatitis. SIRS is treated with intravenous fluids, medications to increase blood pressure and interrupt the inflammatory process.

Acute Respiratory Failure

The lungs remove CO2 or carbon dioxide from the blood and replenish the blood with O2 or oxygen. Acute respiratory failure occurs when the lungs do not work well enough to replenish blood with oxygen.

Acute respiratory failure may be the reason for admission to ICU or a complication that occurs in the ICU stemming from many different causes. Acute respiratory failure can range from mild to severe. In its mild form, it can be treated with oxygen and methods to strengthen breathing and bring up phlegm.

Moderate to severe respiratory failure, resulting from conditions like pneumonia or chronic obstructive pulmonary disease (COPD), is usually treated with some kind of mechanical support – BiPap or mechanical ventilation.
BiPap is supplied by a tight fitting mask that delivers oxygen under pressure. Mechanical ventilation is delivered by an endotracheal tube (ETT) in the patient’s trachea or windpipe.

Acute Respiratory Distress Syndrome (ARDS) is the most severe form of respiratory failure. It is treated by mechanical ventilation through an ETT or tracheostomy or tube in the patient’s neck entering the windpipe.

Although there are many causes of ARDS, some of the most common are pneumonia or infection in the lungs, aspiration or foreign liquid in the lungs, trauma, severe infections and pancreatitis. There is no single therapy for ARDS and the recovery time is usually several weeks. The goal is to support the patient until the lungs are able to heal.

**Chronic Respiratory Failure**
If a patient remains critically ill for a long period, the patient becomes very weak. This weakness often prevents a patient from being able to breathe without assistance. The patient’s respiratory muscles need to be exercised and slowly strengthened. This may take as long as 2 or 3 months.

When the use of a breathing machine or ventilator is required for more than a few weeks, the physician may need to move the breathing tube from the patient’s mouth to the neck (tracheostomy). This improves the patient’s comfort and helps improve the patient’s breathing.

**Infections**
Infection can be the reason that a patient is admitted to the ICU or infections can develop while a patient is in the ICU. When devices like breathing tubes and intravenous catheters are necessary for treatment, they can lead to infections.

The most common infection in a patient on a ventilator is pneumonia. Pneumonia can be treated with antibiotics, but may be severe enough to cause sepsis.

Another severe infection that can occur is called bacteremia or infection in the blood.

Patients can get bacteremia from many sources – bowel, kidneys, lungs etc – or from intravenous catheters needed to treat other conditions. If intravenous catheters or lines become infected (line sepsis) the catheter needs to be removed and a new one inserted.

**Renal Failure**
Failure of the kidneys (renal failure) to eliminate fluid and waste from the patient’s body can be caused by many conditions. Sepsis, dehydration, toxic substances, and hypertension are some of the causes.

Renal failure can be mild and treated with intravenous fluids and medications to control the cause and help the kidneys work better.
If renal failure is severe, the patient may need to go on dialysis to take over the function of the kidneys.

Severe renal failure may improve with time and treatment to the point where the patient no longer needs dialysis. In some cases, the kidneys may never be able to function well enough and the patient will need dialysis for the remainder of life. Every patient and condition is different, so it is difficult to predict the outcome.

**Neurological Conditions**

A variety of neurological or brain disorders are seen in ICU. These may include strokes, infections, lack of oxygen to the brain tissue (cerebral anoxia) resulting in tissue death, traumatic injuries or other changes that occur when a patient is critically ill.

The patient may be sleepy, confused, agitated, or unconscious. Depending on the patient’s condition, the medical team may sedate and restrain the patient to prevent the patient from self-harm.

Elderly patients are more likely to experience confusion and agitation as they are in unfamiliar environments and have disturbances in their sleep patterns.

**Bleeding and Clotting**

Bleeding and clotting in critically ill patients are quite common.

Bleeding can occur as a result of pre-existing conditions such as liver failure or gastric ulcers, or these conditions can develop as a result of sepsis.

Also patients can develop stress ulcers in the stomach because of the stress the body experiences when critically ill. Patients in the ICU are given medication to prevent stress ulcers, but the condition can occur anyway.

Blood transfusions may be ordered if the patient’s red blood cell count (Hemoglobin) drops too low as a result of bleeding.

Critically ill patients are also at risk for developing blood clots especially in their legs or lungs. To prevent these clots from developing, patients may be given medication or devices may be placed on the legs to help the blood to keep circulating. These are called sequential compression devices or SCDs. Blood clots may be minor and only require treatment with anticoagulants, or they can be life threatening.

**Multiple Organ Dysfunction Syndrome – MODS**

Any type of critical illness that brings a patient to the ICU has the potential to affect other organs. As patients become more ill, organs that may not have been affected at first slowly begin to fail. There is not a specific treatment for this condition – only supportive care with the hope that these organs can eventually recover their function.