

ICU

Issues & Answers

Common Problems of Critical Illness

Conditions that may bring
your loved one into the ICU
or that may develop while in
the unit.

Society of
Critical Care Medicine



The Intensive Care Professionals

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There are many reasons a person may need care in an Intensive Care Unit (ICU). This brochure will attempt to explain some of the more common problems and conditions that either bring a patient to the ICU or develop while the patient is in the unit. Ask your loved one's nurse or the intensivist (a doctor with special expertise in these problems or conditions) for further information.

Shock

In shock the organs of the body do not get enough oxygen and blood pressure for them to function normally. Shock can be caused by many reasons. The 4 most common causes and their treatments are:

- Hypovolemic Shock—severe dehydration or massive blood loss
Treatment: intravenous fluids (IV) and/or blood transfusions
- Cardiogenic Shock—cardiac or heart failure
Treatment: medications or devices to improve heart function
- Septic Shock—severe infection resulting in organ failure
Treatment: intravenous fluids (IV) and medications to increase blood pressure and treat the infection
- SIRS or Systemic Inflammatory Response Syndrome—can be caused by any massive trauma to the body such as a car accident, severe infection, or by some

medical conditions such as
pancreatitis

*Treatment: intravenous fluids (IV)
and medications to increase
blood pressure*

If shock cannot be reversed in a matter of days the body's organs will start to shut down. This may lead to death.

Acute respiratory failure

The lungs remove CO₂ (carbon dioxide) from the blood and resupply the blood with O₂ (oxygen). Acute respiratory failure occurs when the lungs do not work sufficiently. Acute respiratory failure may be the reason for admission to an ICU or a complication that occurs in the ICU from many different causes. Acute respiratory failure can range from mild to severe.

Causes of mild acute respiratory failure include a variety of conditions such as pneumonia or heart failure. These are usually treated with oxygen and respiratory treatments to help strengthen breathing and bring up phlegm.

Moderate respiratory failure may be caused by more severe pneumonia or chronic obstructive pulmonary disease (COPD). Usually these patients need some type of mechanical support to help their breathing. Support may be provided by a tight-fitting mask that delivers oxygen under pressure or through

the insertion of an endotracheal tube (breathing tube) into the trachea (windpipe). A variety of support can be provided through this tube.

The most severe form of acute respiratory failure is called ARDS (Acute Respiratory Distress Syndrome). In ARDS the lungs cannot supply oxygen to the blood, and a ventilator (breathing machine) may be needed. ARDS is always caused by something but the list of somethings is very long. Common examples of causes are: pneumonia, aspiration (foreign liquid gets into the lungs), trauma, severe infections, and pancreatitis. There is no single therapy for ARDS. The goal is to support the patient until the lungs heal.

Chronic respiratory failure

If patients remain critically ill for a long period, they become very weak. This weakness often prevents them from having the strength to breathe on their own. The respiratory muscles need to be exercised and slowly built up before the patient will be able to breathe on his or her own again. This may take as long as 2 to 3 months. When the use of a breathing machine is needed for more than a few weeks, it may be necessary to move the tube from the mouth or nose to the neck (tracheostomy). This is done to improve



patient comfort and help the patient breathe well enough to be removed from the ventilator. A feeding tube may also need to be inserted.

Infections

Infections can also develop while a patient is in the ICU. Infections occur for many reasons. Usually the illness that has brought the patient to the ICU has weakened him or her and lessened the ability to fight off infections. In addition, a patient often needs devices like a breathing tube and intravenous lines. These medical devices are necessary, but foreign to the body and can lead to infections.

The most common infection in a patient on a ventilator is pneumonia or an infection of the lung. Sometimes the pneumonia can be mild and is treated with antibiotics. Sometimes the pneumonia can be severe and cause sepsis and ARDS.

Another severe infection that can occur is bacteremia or infection of the blood. This infection may be caused by the presence of intravenous lines that the patient needs to receive medications. This is called a line infection or line sepsis. If this occurs, the intravenous line needs to be removed and a new line placed in a different location. Most of the time line sepsis can be successfully treated with antibiotics. Line sepsis can also lead to



hypotension and ARDS.

Other infections that can occur include UTIs or urinary tract infections from a Foley catheter or tube inserted into the bladder to drain urine. There may be infections in the bowel that may cause diarrhea. Wound infections may occur from a recent surgery in which the surgical incision has not completely healed yet. These infections are usually treated fairly easily with antibiotics.

Sepsis and Severe Sepsis

Infections are a common cause of ICU admission and are also a frequent complication. The severity of infection, as well as the age and medical conditions affecting the patient, may put them at risk for an uncontrolled inflammation in response to their infection and/or injury. This inflammatory response is called sepsis. Severe sepsis occurs when this inflammation begins to affect the function of the body (renal failure and acute respiratory failure, to name a few), and the patient becomes very sick. Aggressive antibiotics, fluids, other medications, and sometimes surgery may be used to treat sepsis and severe sepsis, while other forms of support (dialysis, ventilation) may be needed to support the body's function. When blood pressure becomes low and specific drugs (vasoconstrictors) to address it are

used, this is known as septic shock.

Renal failure

The kidneys remove water and toxins from the body. Kidney or renal failure is very common in the ICU and can be the reason the patient came to the ICU. It may also develop at any time while the patient is in the ICU. The kidneys are very sensitive to any severe illness and many different illnesses can lead to renal failure.

Two major problems occur with renal failure. First, the body is unable to remove extra water from the body. The skin is a common place the water is stored and results in swelling of the arms, legs, and face. The patient will often look puffy. That extra water also builds up in the organs of the body and can cause trouble breathing and problems with the function of other organs.

The second function of the kidneys is to remove toxins from the body. When those toxins start to build up they affect the brain and the patient gets sleepy and can become unresponsive (goes into a coma). These toxins are not damaging the brain and the patient should wake up again if the toxins can be removed. If the toxins build up enough, the heart may stop and the patient will die



from renal failure.

Renal failure can be mild to severe. Mild causes can be treated with intravenous fluids and sometimes medications to help the kidneys work better. Severe renal failure can lead to the need for dialysis (a machine to take over the function of the kidneys and remove the toxins and the extra water). Dialysis does not make the kidneys improve faster. The kidneys must heal by themselves. Dialysis only allows the body to stay alive while the kidneys are improving.

There are 2 major types of dialysis: intermittent or continuous. Intermittent dialysis is a treatment that uses a machine for 3 to 4 hours a day or every other day. Continuous dialysis is a machine that stays connected to the patient 24 hours a day. The sicker a patient is the more likely they will need continuous dialysis.

An important question about renal failure is: Will the kidneys ever recover? This is a hard question to answer because every patient and every situation is a little different. A general rule is if the patient had normal kidney function before they got sick, they have a good chance of not having permanent renal failure. If their kidneys were not normal before they came to the ICU, then the chances of their kidneys' improving are much lower. If the kidneys are to



improve it may occur while they are in the ICU, but it may take weeks to months before the kidneys improve. Sometimes patients even go home on dialysis and improve several months later.

Neurological conditions

A variety of neurologic (brain) disorders are seen in the ICU. These may include traumatic brain injuries, strokes, infections, or changes that occur when a patient is critically ill. The patient may be sleepy, disoriented, frightened, or agitated. He or she may become paranoid and scared and require calming medications and restraints to prevent harming him or herself. The patient may not be awake at all while they remain critically ill. These changes are related to how sick the patient is, and usually resolves if the overall condition improves. Elderly patients are extremely susceptible to these changes due to the unfamiliar environment and the change in sleep patterns that occur in the critical care unit.

Bleeding and clotting

Two other common problems deserve mention. The critically ill patient can develop bleeding from the stomach from what is called a stress ulcer. Most critically ill patients are given medication to pre-



vent this, but it can occur even if this medication is given. Usually the bleeding stops by itself but often requires blood transfusions. Occasionally surgery or another procedure needs to be considered.

Critically ill patients also are at risk for developing blood clots in their legs and lungs. Most critically ill patients are given medications, or devices are placed on their legs to prevent this; but, it can occur even with these measures. The blood clot can be minor and only need anticoagulation to treat or it 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 the other organs in the body. These organs may not have been affected at first, but slowly one organ after another starts to fail. This is called Multiple Organ Dysfunction Syndrome or MODS. There is not specific treatment for MODS, only supportive care. The first and most commonly affected organs are the lungs and the kidneys, followed by the brain and the immune system (fights off infection). Other organs then begin to be involved: the heart, liver, blood, intestines, and any other organs of the body can be affected. Once a patient starts to develop MODS,



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their chances of surviving start to decrease. The more organs that fail the more likely it is that the patient will not survive.

Resources

- www.sccm.org
- www.icu-usa.com
- www.cityofhope.org
- www.patientspartner.com
- National self-help clearinghouse
212-642-2944
www.selfhelpweb.org
- www.mayoclinic.com
- Partnership for caring
America's voices for the dying
1-800-989-9455
www.partnershipforcaring.org
- www.dyingwell.org
- Hospice link:
1-800-331-1620
- ICU Issues & Answers from SCCM
 - Participating in Care: What Questions Should I ask?
 - Taking Care of Yourself While a Loved One is in the ICU
 - Why Do ICU Patients Look and Act This Way?
 - Common Problems of Critical Illness
 - What Are My Choices Regarding Life Support?

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