

# Examining the diagnosis and treatment of septic shock



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## Disease Process and Disease Concept

Septic shock is a serious condition caused by an infection that leads to low blood pressure, different tissue perfusion and oxygen delivery.

## Pathophysiology

Septic shock occurs most often in the very young, very old and very sick. The main cause of septic shock is bacterial infection however fungi and virus can also cause it too. Toxins released by the bacteria or fungi cause tissue damage. The body produces a strong inflammatory response to the toxins. The tissue damage and inflammatory response can lead to organ damage. The CDC put septic shock as the 13th leading cause of death in the United States, and the #1 cause of death in the ICU. The mortality rate is between 20% to 50% depending on how severe the disease is. (Michael R Filbin) The morbidity of septic shock can be quite significant. Due to the tissue and organ damage things like acute respiratory distress syndrome (ARDS) can occur. ARDS leads to a longer stay in the ICU as well as increase the possibility of ventilator-associated pneumonia. ARDS also has a mortality rate that can reach 50%. Myocardial dysfunction, acute renal failure and chronic dysfunction, disseminated intravascular coagulation (DIC), and liver failure are some other possible complications caused by septic shock. Another complication is Long-term neurologic and cognitive sequelae caused from prolonged tissue hypoperfusion. “ Poor outcomes often follow failure to institute early aggressive therapy (eg, within 6 h of suspected diagnosis). Once severe lactic acidosis with decompensated metabolic acidosis becomes established, especially in conjunction with multiorgan failure, septic shock is

likely to be irreversible and fatal.” (68. SEPSIS AND SEPTIC SHOCK) “ Many people who survive severe sepsis recover completely and their lives return to normal”.(sepsis facty sheet)

### Labs and Diagnostics

There isn't one laboratory test that can confirm Septic shock. Bacteria found in the blood can help support the diagnosis of septic shock. All bodily fluids need to be tested such as blood, urin, sputum and any other drainage. An elevated WBC and differential leukocyte count may be increased indicating infection. Normal adult values should be 5000-10, 000/mm<sup>3</sup>. Another possible indicator of septic shock is low levels of activated protein C. Normal levels are 70%-150% of normal activity. Protein C helps prevent blood clots when there isn't enough protein C then thousands of small clots form in the capillaries of vascular organs. Decreased Protein C can indicate the begging of sever septic shock.

### Medications and treatments

I. V. antibiotics are given to treat the bacterial infection. The most common drugs used for septic shock are vancomycin, aminoglycosides, systemic penicillin or cephalosporins, macrolides, and quinolones. Low-dose corticosteroids like IV hydrocortisone and oral fludrocortisone (Florinef) are given for adrenal insufficiency. Insulin therapy is used for maintain. Synthetic activated protein C is given to stop inflammatory responses while preventing small clots formation and halting the progression of the disease. Drotrecogin alfa (Xigris) is the only approved synthetic protein C. the patient may need fresh frozen plasma, whole blood, or packed red blood cells to replace lost  
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blood from hemorrhaging. Breathing machine (mechanical ventilation) may need to be used to enhance oxygenation.

### Subjective and Objective Data

A possible patient for septic shock would be a 78 year old male who lives alone and doesn't take good care of himself. He doesn't eat well and doesn't drink much fluids. One day he wakes up and doesn't feel well he has chills and thinks he might have a fever. He calls his doctor and goes to the office. The doctor tells him he has a fever of a 101 degrees the doctor admits him to the ICU. The patients face was flushed, skin is warm, and his urin was cloudy a test was done on the urin E-coli was found. The patient was placed on I. V. fluids for rehydration. His mental status is altered. The patients' temperature rose to 103 degrees pulse is 110, respiration is 28, and Blood Pressure is 125/65 and his O2 is 89 on room air. The patient is placed on 3l/min nasal canula. The patient WBC was elevated. The patient was put on antibiotics. The patient's condition continues to deteriorate. The patient's skin becomes cool and clammy he struggles to breath. His respirations are 10 per/min B/P is 80/50 temp 104, pulse 140. The doctors decide to intubate and place the patient on a ventilator. The Patient is diagnosed with acute renal failure due to hypovolemia. The doctor places the patient on hemodialysis. The patient does finally improve after being in the ICU for two weeks he gets better and is sent to the medical floor. He stays for another two weeks and is released home. This is a good outcome in most cases when sepsis causes organ failure the patient dies. This patient has a full recovery and doesn't suffer any prolonged organ damage.

## Nursing Diagnoses

The Patient is at risk for deficient fluid volume related to abnormal loss of fluid through capillaries, pooling of blood in peripheral circulation as evident by low blood pressure, low urian output and raspatory depression. The patient is at risk for ineffective protection related to inadequately functioning immune system as evident by fever, chills and infection. The patient is at risk for injury related to prolonged shock resulting in multiple organ failure as evident by renal failure and respiratory failure.

## Nursing Interventions

Watch for early signs of hypovolemia, including restlessness, weakness, muscle cramps, headaches, inability to concentrate, and postural hypotension. Monitor for the existence of factors causing deficient fluid volume (e. g., difficulty maintaining oral intake, and fever). Monitor vital signs of clients with deficient fluid volume every 15 minutes if unstable or every 4 hours if stable. Observe for tachycardia, tachypnea, and decreased pulse pressure, which will occur first, followed by hypotension, decreased pulse volume, and increased or decreased body temperature. Observe nutritional status (e. g., weight, serum protein and albumin levels, muscle mass, usual food intake) work with the dietitian to improve nutritional status if needed. Complete a head-to-toe assessment twice daily, including inspection of oral mucosa, invasive sites, wounds, urine, and stool; monitor for onset of new reports of pain. Provide frequent oral care. Help the patient bathe daily. Ensure that the client is well nourished, provide food with protein and consider vitamin supplements. If appetite is suppressed, institute

a dietary referral. Keep track of serum albumin levels as well as transferrin and prealbumin levels. Reduce the risk of infections by following Centers for Disease Control (CDC) hand hygiene guidelines. Ask family to stay with the patient to prevent the patient from accidentally falling or pulling out tubes. If the client experiences dizziness because of orthostatic hypotension when getting up, teach methods to decrease dizziness, such as rising slowly, remaining seated several minutes before standing, flexing feet upward several times while sitting, sitting down immediately if feeling dizzy, and trying to have someone present when standing.

#### Health Promotion and Prevention

Teach the patient that healthy eating can prevent illness. Getting the recommended amount of daily fluids can prevent sickness. As Mrs. McBride says “ the solution to pollution is dilution”. Fluids can flush the system of toxins. Avoid crowds and people who are ill. Monitor for weakness and possible fall hazards. Injuries related to falls can lengthen the time in the hospital and increased the risk of getting another sickness from the hospital stay.

#### Collaborative Efforts

Consult with a dietitian to help the patient learn a diet adequate in nutrients and to teach the patient the importance of adequate fluid intake and to promote overall healthy living. Social Services consult to help the patient in finding and utilizing community resources to promote independence such as transportation, possible meals on wheels, and home health agencies to aid in ADL's and overall health maintenance. As the patients' health improves, <https://assignbuster.com/examining-the-diagnosis-and-treatment-of-septic-shock/>

refer the patient to Physical therapy for gait training, strengthening, and balance training. Refer Occupational therapy services to Assess home environment for factors that create barriers to physical mobility. Assist the patient in restructuring home and daily living patterns as need. Refer to home health aide services to support the patient and family through changing levels of mobility as tolerated.

### Patient Education

Teach precautions to take to decrease the chance of infection (e. g., avoiding, uncooked fruits, and vegetables, using appropriate self-care, ensuring environment) teach the patient to avoid crowds and contact with persons who have infections. Teach the need for good nutrition, avoidance of stress, and adequate rest to maintain immune system function. Teach the patient how to measure and record intake and output accurately. Teach measures instituted to treat hypovolemia and prevent or treat fluid volume loss. Instruct the patient about signs of deficient fluid volume that indicate they should contact the healthcare provider.