Sepsis Mortality Reduced With Team Protocol

Hundreds of patients die daily in the U.S. of severe sepsis—the leading noncoronary cause of death in the ICU. And yet, in much of the healthcare system, treatment formalization for sepsis has been slow to catch up. Advanced critical care centers such as Lourdes, though, have embraced protocols based on the international Surviving Sepsis Campaign. The initiative uses care “bundles” (sets of care steps) to standardize testing and treatment, and save patient lives.

“Over the last two years at Our Lady of Lourdes Medical Center, our team led by intensivists has decreased mortality from severe sepsis and septic shock by 39 percent by implementing these and other evidence-based procedures,” said pulmonologist Alan Pope, MD, Chief Medical Officer at Lourdes Health System.

Rapid, Multitargeted Response to Serious Infection
Recognizing and treating sepsis earlier is one key to this success. Central to the care is administering the right broad-spectrum antibiotic within the first hour of recognition, while using aggressive fluid therapy. In addition:

- Sepsis causes vasodilation, hypotension and lactic acidosis. The critical care team monitors lactate level as an indicator of global organ hypoperfusion, helping to tailor steps to stabilize and improve central venous oxygen saturation and pressure, as well as mean arterial pressure, within the first few hours.
- Inotropic therapy supports heart function during severe sepsis.
- Individualized blood-product therapy, including RBC transfusions, can assist in oxygen transport and other measures.

- Treatment can include steroid administration and attention to coagulation therapy and glucose control.

“But making scrupulously sure of hydration and organ perfusion are the most important elements of this new focus,” said Dr. Pope.

Maintaining high fluid volume is the element of early goal-directed sepsis therapy that has most improved outcomes.

Constant Monitoring and Modification of Care
As with all types of acute care involving specialized teams, good communication among staff members is paramount for evaluation and quick action. Lourdes’ hospitalists are educated for fast initiation of goal-directed therapy for sepsis, for which the need for intervention is more time sensitive than traditionally thought.

“We are also a high-acuity hospital and we see sepsis of many different origins,” added Dr. Pope. A large segment of patients are elderly or immunosuppressed from disease or treatment, and most forms of severe sepsis are pulmonary (pneumonias) or intra-abdominal (including patients who have recently undergone surgery or may even require surgery during treatment for sepsis).

Other treatment includes source control of infection that may require drainage and debridement, protocol-driven mechanical ventilation for acute respiratory syndrome (with a weaning protocol that has a spontaneous breathing trial at least daily), renal replacement therapy, and protection against DVT and stress ulcers. Most importantly, advanced sepsis care means monitoring patients minute to minute and hour to hour for response to treatment and adjustment of fluids, antibiotic therapy and other care. Lourdes’ team has demonstrated that constant and sophisticated oversight reduces inpatient and postdischarge mortality.

For more information, visit www.lourdesnet.org or call 1-888-LOURDES (1-888-568-7337).

2013 HealthGrades results for Lourdes critical care & pulmonary medicine services:

- Critical Care Excellence Award™
- Ranked #2 in New Jersey, and among the Top 10 percent in the nation, for critical care
- Five-Star recipient for treatment of sepsis and respiratory failure
COPD Patients Should Be Screened for Genetic Condition

According to recently improved understanding of alpha-1 antitrypsin deficiency (AATD), patients with COPD should be tested for the condition, especially those with incomplete response to aggressive treatment with bronchodilators. Estimates indicate that more than 9 million individuals in the U.S. have at least one PiZ allele for this genetic condition and thus are at risk for AATD.

“Because it is now treatable, we are trying to test all of our COPD patients for AATD,” said Stuart Mest, MD, a pulmonologist at Lourdes Medical Center of Burlington County. Pulmonologists add AAT augmentation therapy (intravenous administration of AAT obtained from pooled human plasma) to other COPD care to treat the condition. AAT treatment helps to protect lungs from further damage and reduce airway inflammation.

Individuals with this inherited condition have low or no AAT in the blood. When both copies of the gene are defective, the common result is emphysema. In the general population, COPD does not normally develop before the age of 45, but AAT-deficient patients may manifest it between ages 30 and 45. Smokers with AATD lose lung capacity especially quickly and those with the trait need to avoid exposures. Mutant AAT Z protein accumulates in the endoplasmic reticulum of hepatocytes, causing liver injury. Pulmonologists and gastroenterologists/hepatologists are increasingly cognizant of cross-referral for this condition.

Care requires AAT infusions one or more times per month. The treatment is expensive, but many insurances or other resources available to patients cover a significant portion of the cost.

AATD is one of the most common serious genetic disorders in the world and, for most patients, the delay between first appearance of symptoms and diagnosis is years — needlessly so. A small blood sample can reveal low serum levels of AAT and determine AAT phenotype. AATD individuals should inform family members of their status, as testing of siblings is recommended.

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Produced in the liver, AAT protects the lungs from neutrophil elastase (NE), an enzyme released by white blood cells that can attack healthy lung tissue by degrading elastin and collagen. Estimates are that less than 10 percent of individuals with AATD are diagnosed.