

*Opinion Article*

## Opinion on the concept of sepsis and septicemia

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### DESCRIPTION

Bacteria are microscopic single-cell microorganisms, most of them are harmless and many are helpful. Some of the bacteria in the intestines aids in digestion of food. However, some types of bacterial species can cause bacterial infections, which in progress leads to sepsis. Sepsis is although caused by both fungal and viral infections but the most sepsis death contributive organism is bacterial pathogens (agents of causing infection). Sepsis is caused by most dominant gram positive bacteria like *Staphylococcus aureus* and *Streptococcus pneumoniae* and gram negative bacteria like *Escherichia coli*, *Klebsiella spp.*, and *Pseudomonas aeruginosa*. The rate of sepsis is influenced by the type of the local population characteristics, organism virulence, and health care structure variables. Sepsis accounts for 15%-20% of all deaths in the developing countries and kills over 1.5 million children and newborns every year. It is more deadly than stroke, killing a third of all patients with the severe form of the illness. It is responsible for a third of admissions to the Intensive Care Unit (ICU). The mortality rate of patient with sepsis is determined by the class of primary organism is responsible for the infection. Septicemia is a serious bloodstream infection. Bacterial infection enters throughout the body parts *via* bloodstream such as skin, lungs, kidneys, and bladder. Septicemia can become a life threatening condition if not treated it may gradually progress to sepsis which is considered as inflammation throughout the body. This inflammation condition may leads to blood clots and depletes the oxygen demand to the vital organs, which results in multi-organ failure. Any type of infection may lead to sepsis; the

infection may include lung, kidney, urinary system, wounds or burns. The sepsis condition worsens on basis of several factors like age, comorbidities, taking immunosuppressant drugs and previous use of antibiotics. Bacterial toxins allow the pathogen to modulate host defenses mechanism. The outcome of the disease is determined by the type of toxin released in the host system. Gram-positive bacteria are the most common causative factor of sepsis. Some of the most frequently isolated bacteria in sepsis are *Staphylococcus aureus* (*S. aureus*), *Streptococcus pyogenes* (*S. pyogenes*), *Klebsiella spp.*, *Escherichia coli* (*E. coli*), and *Pseudomonas aeruginosa* (*P. aeruginosa*). Bacterial infections varies, depending on the part of the body get affected. Bacterial pneumonia, symptoms include fever, cough, and Shortness of Breath (SOB), sweating, headache, fatigue and chest pain with breathing. Urinary tract infection, symptoms include sudden and extreme urges to urinate, burning, irritation, a feeling of not emptying bladder completely, a feeling of pressure in the bladder, thick or cloudy urine (it may contain blood), and fever. Bacteria cause sepsis in different forms such as encapsulated, planktonic, L-form and biofilm fragments. When the infection occurs within the tissues the health providers suggest antibacterial therapy. If infection enters into the bloodstream the effectiveness of antibacterial therapy dramatically decreases. So the most effective treatment method of sepsis is preventing bacteremia. Inhibition of the production of bacterial antioxidant enzymes may increase the effectiveness of phagocytosis in the tissues and oxycytosis in the bloodstream. Early detection and infection rate diagnosis is essential to cure the sepsis and further chronic conditions.

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