

Abstract

Background: Sepsis is a systemic, deleterious host response to infection leading to severe sepsis (acute organ dysfunction secondary to documented or suspected infection) and septic shock (severe sepsis plus hypotension not reversed with fluid resuscitation). Severe sepsis and septic shock are major healthcare problems, affecting millions of people around the world each year, killing one in four (and often more), and increasing in incidence. Similar to polytrauma, acute myocardial infarction, or stroke, the speed and appropriateness of therapy administered in the initial hours after severe sepsis develops.

Aims: The aim of this study is to highlight the importance of early recognition of sepsis and early appropriate administration of empirical antimicrobial agents with spectrum likely to treat the responsible pathogen effectively.

Mythology: Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. This new definition emphasizes the primacy of the nonhomeostatic host response to infection, the potential lethality that is considerably in excess of a straightforward infection, and the need for urgent recognition.

Conclusion: The first protocolized step in the care of patients with septic shock is fluid resuscitation with the goal of restoring intravascular volume (and presumptively, preload). There are several methods to estimate volume status that are gaining support, such as ultrasound-guided assessment of the respirophasic variation of the inferior vena cava (IVC), and pulse-pressure variation (PPV). The second resuscitation endpoint in SS/SS is the establishment of a MAP of at least 65 mmHg. The third resuscitation endpoint for the treatment of septic shock is a SCVO₂ of at least 70%, as a measure of the balance between tissue oxygen delivery and consumption.

Keywords: Concept of empirical, antimicrobial agents, critical ill patients, sepsis.

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List of Abbreviations

AKI	: Acute kidney injury
AmpC	: Cephalosporinases
ARC	: Augmented renal clearance
ARDS	: Acute respiratory distress syndrome
BP	: Blood pressure
CDI	: Cardiac device infection
CMV	: Cytomegalovirus
CNS	: Central nervous system
CNS	: Coagulase-negative staphylococcus
COPD	: Chronic obstructive pulmonary disease
CPIS	: Clinical pulmonary infection score
CRP	: C-reactive protein
CSF	: Cerebral Spinal Fluid
CT	: Computed tomography
CVC	: Central venous catheter
CVVH	: Continuous venovenous hemofiltration
CVVHD	: Continuous venovenous hemodialysis
CVVHDF	: Continuous venovenous hemodiafiltration
DIC	: Disseminated intravascular coagulopathy

List of Abbreviations

Do ₂	: Oxygen delivery
EGDT	: Early goal directed therapy
ESBL	: Extended-spectrum beta-lactamase producing bacteria
ESC	: European Society of Cardiology
FDA	: Food and Drug Administration
HAART	: Highly active antiretroviral therapy
HCAP	: Healthcare-associated pneumonia
HES	: Hydroxyethyl starches
HIV	: Human immunodeficiency virus
HR	: Heart rate
HSV	: Herpes simplex virus
ICU	: Intensive care units
IE	: Infective endocarditis
IL	: Interleukins
INR	: International normalized ratio
IV	: Intravenous
IVC	: Inferior vena cava
IVIGs	: Intravenous immunoglobulins
KPC	: K. pneumonia carbapenemase-producing

List of Abbreviations

MAP	: Mean Arterial Pressure
MIC	: Minimum inhibitory concentration
MRSA	: Methicillin-resistant <i>S. aureus</i>
MSSA	: Methicillin-sensitive <i>Staphylococcus aureus</i>
NCSE	: Non-Convulsive Status Epilepticus
NPV	: Negative predictive value
OA	: Open abdomen
PCT	: Procalcitonin
PK	: Pharmacokinetics
PPV	: Pulse-pressure variation
PT	: Prothrombin time
RR	: Respiratory rate
RRT	: Renal replacement therapy
RSV	: Respiratory syncytial virus
SARS	: Severe acute respiratory syndrome
SCVO2	: Central venous oxygen saturation
SIRS	: Systemic inflammatory response syndrome
SLED	: Sustained low-efficiency dialysis
SOFA	: Sequential Organ Failure Assessment
SS/SS	: Severe sepsis/septic shock

List of Abbreviations

TAVI	: Transcatheter aortic valve implantation
TNF- α	: Tumor necrosis factor α
TOE	: Transoesophageal echo-cardiography
UTIs	: Urinary tract infections
VAP	: Ventilator-associated pneumonia
Vd	: Volume of distribution
VHF	: Viral hemorrhagic fevers
VZV	: Varicella-zoster virus
WCC	: White cell count

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Introduction





Aim of the Work





Chapter (1)

Sepsis





Chapter (2)

Concept of Antimicrobial Agents Used in Critical Ill Patients





Chapter (3)

Serious Infection as Regard Systematic Affection





Summary





References

