



CLINICAL PROFILE OF SEPTIC SHOCK PATIENTS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: This study was conducted to look for the clinical profile including the patterns of morbidities, comorbidities & mortality patterns in septic shock patients admitted in our hospital in a developing country. The objective is to study their clinical profile in a tertiary care hospital associated with Government Medical College Srinagar, in India.

Material And Methods: In this study, all those patients who were admitted in our medicine ward in Sri Maharaja Hari Singh hospital [SMHS] (associated hospital of Government Medical College, Srinagar) with septic shock in our ward over a period of 6 months were studied using the criteria provided by the SCCM/ACCP (Society of Critical Care Medicine / American College of Chest Physicians). A total of 70 patients were admitted during these 6 months with septic shock. Patients were studied for their presenting complaints, comorbidities, diagnoses, residence and gender distribution. APACHE II and SOFA scores were calculated in all patients.

Results: A total of 70 patients were admitted with septic shock in our ward during these 6 months. Out of these, 68.57% patients expired. Males were 57.14% and females 42.85%. Most common source of infection was respiratory followed by urinary tract. Most common comorbidity was hypertension followed by diabetes mellitus and chronic obstructive pulmonary disease (COPD).

Conclusion: The most common source of infection leading to septic shock in our patients is infection from respiratory followed by urinary tract.

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INTRODUCTION

According to the definition developed at 1991 consensus conference [1][2], sepsis is an infection or suspected infection leading to SIRS (systemic inflammatory response syndrome) which is defined as the presence of two or more of the following namely tachycardia (heart rate >90 beats/min), tachypnea (respiratory rate >20 breaths/min), fever or hypothermia (temperature >38 or <36 °C), and leukocytosis, leukopenia, or band forms in blood (white blood cells >1,2000/mm³, <4,000/mm³ or bands ≥10%). When sepsis is complicated by organ dysfunction, it is termed severe sepsis, which can then progress to septic shock, defined as “sepsis-induced hypotension persisting despite adequate fluid resuscitation.”

A task force in 2016 convened by the Society of Critical Care Medicine (SCCM), the European Society of Intensive Care Medicine (ESICM) and other national societies, proposed a new definition of sepsis, termed Sepsis-3 [3] which defines sepsis as a life-threatening organ dysfunction caused by a dysregulated host response to infection [3],[4],[5].

sepsis. Thus, the 2016 SCCM/EISCM task force recommendations eliminate the concept of sepsis without organ dysfunction.

Early recognition and management are very important in patients with septic shock. Treatments thought to reduce the risk of death in septic shock are limited to early resuscitation with fluids and vasopressors, control of the source of sepsis (which may need surgical intervention), and early administration of appropriate empirical antibiotics [6].

MATERIAL AND METHODS

In this study, all those patients who were admitted in our medicine ward in Sri Maharaja Hari Singh hospital [SMHS] (associated hospital of Government Medical College, Srinagar) with septic shock were studied. We covered a period of 6 months using the criteria provided by the SCCM/ACCP (Society of Critical Care Medicine / American College of Chest Physicians). A total of 70 patients were admitted in our ward during these 6 months with septic shock. Patients were studied for their presenting complaints, comorbidities, diagnoses, residence and gender distribution. APACHE II and SOFA scores were calculated in all patients. As per age distribution, we divided the patients into three age groups: a. <45 years, b. 46-65 years, and c. >65 years.

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APACHE II (Acute Physiology and Chronic Health Assessment) score ranges from 0 to 71. It is calculated from the following 12 physiological measurements (score from 4 to 4 via 0):

1. Partial pressure of oxygen; PaO₂
2. Temperature
3. Mean arterial pressure
4. Arterial pH
5. Heart rate
6. Respiratory rate
7. Serum sodium
8. Serum potassium
9. Creatinine
10. Hematocrit
11. WBC count
12. GCS (Glasgow Coma Scale) score

These were measured during the first 24 hours after admission, it also includes information about previous health status (recent surgery, history of severe organ insufficiency, immunocompromised state) and baseline demographics such as age (score 0 – 6) [7].

SOFA (Sequential Organ Failure Assessment) score is calculated from 6 different scores, one each for respiratory, cardiovascular, hepatic, coagulation, renal and neurological systems[8]. The scoring features are enumerated as follows:

1. Respiratory system scoring based on PaO₂/FiO₂ (mmHg) and mechanical ventilation.
2. Nervous system scoring based on GCS (Glasgow Coma Scale).
3. Cardiovascular system scoring based on Mean Arterial pressure or requirement of vasopressors.
4. Hepatic scoring based on bilirubin levels.
5. Coagulation scoring based on platelet count.
6. Renal system scoring based on serum creatinine levels or urine output.

RESULTS

A total of 70 patients were admitted in our ward during these 6 months with septic shock. Out of the 70 patients, males were 40 and females 30. 32 (45.71%) patients were from urban areas and 38 (54.28%) were rural. 13 patients were in group a, 33 in group b and 24 in group c as per age distribution. Maximum number of patients had hypertension as the comorbidity (20/70 =28.5%). 18.5% had diabetes, 18.5% had underlying COPD (Chronic obstructive pulmonary disease), 10% had underlying malignancy and 18.5% patients were without any known comorbidity. Other comorbidities included chronic kidney disease (4.2%), atrial fibrillation (4.2%) and psychiatric illnesses (7.1%).

Source of infection was evident in 58 patients (82.8%) whereas rest had suspected but occult source of sepsis. Maximum number of infections involved the respiratory tract (61.4%) followed by urinary (11.4%) and intra abdominal (11.4%) sources. Bacteremia (blood culture positivity) was documented in 28.5% of patients. Other sources of infection included skin and soft tissue, bed sores and CNS. Many patients were primarily admitted for non infectious causes and later developed aspiration or bed sores. Such non-infectious causes included congestive cardiac failure (in 5) , post cardiac arrest survival (in 3), haemorrhagic stroke (in 2), viral syndrome (in

2), myocardial infarction (in 2), hypoglycaemia (in 2), diabetic ketoacidosis (in 1), fracture femur with pulmonary thromboembolism (1 patient), and massive upper gastrointestinal bleed (in 1) . 48 out of 70 patients expired; that is, a mortality of 68.57%.

Supportive measures include ventilation in 15 patients, vasopressor support was given to all. 25 out of 70 patients stayed in the ICU and renal replacement therapy in the form of hemodialysis was given to 17 patients. Steroids were given to 6 patients.

APACHE II score of our patients was 24.48+ 6.81 and SOFA score was 12.37+ 1.99. The average duration of stay of discharged patients was 13.5 days whereas for expired patients, it was 7.6 days.

Most common complications of septic shock in our patients were renal failure and respiratory failure.

DISCUSSION

Septic shock is a serious condition that occurs when sepsis (organ injury or damage caused by known or suspected infection) leads to dangerously low blood pressure and abnormalities in cellular metabolism [9]. The source of infection may be located anywhere in the body, but most commonly in the lungs, brain, urinary tract, skin or abdominal organs [10]. The mortality due to septic shock reaches up to 50 percent even in industrialized countries [11]. Blood cultures are positive in fewer than 50% of cases of sepsis [12],[13],[14].

Most common coexisting illnesses among our patients were hypertension (28.5%) , type II diabetes mellitus (18.5%) and COPD. A study conducted by Anant M *et al* in 2015 showed similar sequence of comorbidities but higher than reported before (42% hypertension and 42 % type II diabetes) [15]. Also, their study population had 25% patients with chronic kidney disease when compared to 1.5% and 4.4% reported before [16],[17]. Most common source of infection in our study was the respiratory tract (37%). Source of infection reported in different studies vary [17],[18],[19].

APACHE II score of our patients was quite high and higher scores indicate more disease severity and a higher risk of death as is evident in our patients. The SOFA score again provides quite valuable prognostic information on the survival of patients admitted with severe sepsis with evidence of hypoperfusion at presentation.

A recent data showed that mortality for severe sepsis or septic shock in younger patients (age < 60 years) was 45.6% as compared to 60.7% in older (age 60–80 years) and 78.9% in very old (age > 80 years) patients [20]. There has been a recent increasing interest in the immuno-neuroendocrine system, finding the relationship between gender, sex hormones, and their effects on various pathophysiological parameters and the immune response following adverse circulatory conditions including sepsis [21],[22],[23].

CONCLUSION

The most common source of infection leading to septic shock in our patients is infection from respiratory followed by urinary tract.

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