Profile of Sepsis Patients in Tertiary Care Centre in Nepal

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ABSTRACT

INTRODUCTION: Sepsis is an important cause of patient morbidity and mortality. Various factors are associated leading to complications of sepsis and better approach and treatment strategies are required to reduce disease progression.

METHODS: All patients who fulfilled any two or more of the SIRS criteria on admission with a probable or definite focus/foci of infection comprised the study population. The study was conducted in National Academy of Medical Sciences, Bir Hospital in the year 2007, January to 2008, June.

RESULTS: 11 were female and 12 were male patients. Mean age was 52 years. Mean hospital stay was 9 days. 14 patients needed ventilator support. All the patients required ionotropic support. Gastrointestinal sepsis was most common comprised of 48% of the patients followed by sepsis from chest comprising of 43% of the patients and 9% of the patients were having urosepsis. 39% of the patients had mortality and 61% of the patients improved. Low platelets was significantly associated with mortality (P =0.016921).Another poor predictor of outcome was associated medical condition survived were having one or more medical ailment.

CONCLUSION: Sepsis is a common disease condition which is frequently fatal and is associated with various risk factors and conditions leading to complications. Early assessment of these factors and timely intervention is required to reduce morbidity and mortality. Further large studies in our setup are required to formulate necessary process for more effective disease management.

KEY WORDS: Sepsis, SIRS, risk factors

INTRODUCTION

Sepsis was defined in a consensus statement as “systemic inflammatory response syndrome (SIRS) that occurs during infection”.

This kind of systemic response is manifested by ≥2 of the following conditions as a result of infection: temperature > 38°C or <36°C, heart rate > 90 beats/min, respiratory rate > 20 breaths/min or pCO2 < 32 mmHg and WBC > 12,000 cells/mm³ or < 4,000 cells/mm³.

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These criteria were developed to help to facilitate research and identify patients who may benefit from newer treatment modalities. Septic shock is the most common type of shock encountered by internists, and its prevalence appears to be increasing.

The incidence of sepsis in the United States ranges from 500,000 to 750,000 cases per year and with an average of 200,000 deaths. A large multicentre observational European study showed that Patients with sepsis had more severe organ dysfunction, longer intensive care unit and hospital lengths of stay, and higher mortality rate than patients without sepsis.

In a study conducted by Rangel, it showed that among patient with systemic inflammatory response syndrome SIRS, 26% developed sepsis, 8% developed severe sepsis and 4% developed septic shock showing...
epidemiological evidence of SIRS progression in ladder like fashion to sepsis, then severe sepsis and then septic shock. Mortality rate also increased in likewise manner in the study.\textsuperscript{6}

A prospective study carried out in a private hospital in Kathmandu also made the following observations. Of the 28 patients included in the study, 10.7\% had sepsis, 89.3\% had severe sepsis, 82\% had septic shock, 42.9\% had multiple organ dysfunction syndrome, 32.1\% had Acute respiratory distress syndrome and 7.1\% had disseminated intravascular coagulation. The overall mortality was 39.3\%.\textsuperscript{7}

Our study was conducted to evaluate the various profile of patients with sepsis.

**METHODS**

The descriptive strategy of this study was conducted on 23 patients with features of SIRS with either culture positive or evidence of source of infections. The patients were selected for the study from patients hospitalized in National Academy of Medical Sciences, Bir Hospital Kathmandu in the year 2007 January to 2008 June. All patients who fulfill any two or more of the SIRS criteria on admission with probable or definite focus/foci of collected were included in the study. Other investigations were done as per indications and antibiotics and other treatment modalities were applied according to guidelines. Demographic, chemical and biochemical profiles were collected. They were analyzed with statistical methods using Microsoft Excel and SPSS 16.1.

**RESULTS**

Out of 23 patients 11 were female and 12 were male. Mean age of presentation was 52 years with the minimum age being 23 years and maximum 96 years. Average age of presentation of male patients was 46 years while 58 for female. Mean hospital stay was 9 days with minimum of 1 day to maximum 17 days. Out of the total patients 14 (60.8\%) patients needed ventilator support and 9 (39.1\%) patients did not need ventilator support. All the admitted patients required ionotropic support. 70\% patients needed one ionotropic support while 26\% of patients needed two ionotropic support and 4\% patients needed three ionotropic supports. Regarding source of sepsis GI sepsis was most common comprised of 48\% of the patients followed by sepsis from chest comprising of 43\% of the patients and 9\% of the patients were having urosepsis. 39\% of the patients expired and 61\% of the patients improved and discharged. 66\% of the patient who expired had one or more medical ailment. The mean age of expired patients was 52 years and for those who survived was 50 years. Age of patients is not significantly (p = 0.6) associated with the mortality in this study. Average platelets in expired patients were 89,000/cu mm while the average platelets in the survival group is 1, 90,000/cu mm and low platelets was significantly associated with mortality (P =0.016921). Another poor predictor of outcome was associated medical condition survived were having one or more medical ailment. In this study only in three cases(13\%) we were able to find out causative organism – they were Streptococcus pneumoniae, Kebsiailla and E. coli. The low yield in culture positivity may have been due to extensive previous antibiotic use etc.

**DISCUSSION**

Sepsis is defined as suspected or proven infection with SIRS.\textsuperscript{2} It can be said that sepsis is the culmination of complex interactions between the infecting microorganism and the host immune, inflammatory and coagulation responses.\textsuperscript{8}

Sepsis incidence and sepsis related death both increased with increasing age and severe sepsis is common, frequently fatal condition and is also expensive to manage.\textsuperscript{4} In a study, out of all sepsis patients, 11\% developed severe sepsis and 13\% developed septic shock.\textsuperscript{9}

In a study it showed that patient with sepsis, if were assigned to early goal directed therapy as compared to standard therapy, had less severe organ dysfunction.\textsuperscript{10} The mortality rate from sepsis from our study was 39\% which is higher than the data analyzed from the United States of 28\%.\textsuperscript{4}

As compared to males, females had lower incidence of sepsis related admissions and mortality rate in US.\textsuperscript{4} In a study from Kathmandu, males were slightly more than females which is similar to our study.\textsuperscript{7}

In this study GI sepsis is most common Contrary to other investigations where the lower. Respiratory tract
involvement was the commonest cause of sepsis from another study in Kathmandu. 

In a prospective observational cohort study of adult intensive care units patients, it was seen that both a low nadir platelet count and a large fall in platelet count predicted a poor outcome, thus providing evidence that thrombocytopenia is a marker for mortality, independent of and complementary to established severity of disease indices. Low platelet count has been found to be associated as a factor favoring deterioration of sepsis to more severe forms.

Treatment of low platelets count depending on the cause and clinical scenario may involve platelet transfusions, stopping heparin and other aggravating drugs. In cases of severe sepsis, use of activated C protein may also provide survival benefit in a subset of such patients.

In our study also, low platelet count was significantly associated with mortality.

The need to use inotropic support in patients reflected some degree of cardiovascular function. In the Sepsis Related Organ Dysfunction Assessment (SOFA) score, the use of mean arterial pressure and the number and doses of inotropic supports has been utilized. In our study all patients required some degree of inotropic support.

Mechanical ventilation carried significant points in one scoring system used to determine the worsening of sepsis. 60% of the patients in our study required ventilator support whereas in a large observational cohort study it was only 17.3%.

A scoring system to see which patient will progress from sepsis to severe sepsis or shock will help the clinician in managing the patients even better.

Therefore, from this study it is seen that various factors are associated in patients with sepsis and its complications including mortality.

CONCLUSION

Sepsis is a common disease condition which is frequently fatal and is associated with various risk factors and conditions leading to complications. Early assessment of these factors and timely intervention is required to reduce morbidity and mortality. Further large studies in our setup are required to formulate necessary process for more effective disease management.

REFERENCES


