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AN OBSERVATIONAL STUDY OF PATIENTS WITH SEPSIS AND CORRELATION OF SOFA SCORE WITH PROGNOSIS IN CRITICALLY ILL PATIENTS

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ABSTRACT

Sepsis with Multi-organ dysfunction syndrome (MODS) is a common cause of Intensive Care Unit (ICU) morbidity and mortality. Our study focuses on mainly Sequential Organ Failure Assessment (SOFA) score. It mainly aims at assessing morbidity and mortality of patients with Multi organ dysfunction syndrome and sepsis and prognosticating the patients by using SOFA score. The study was conducted on the patients admitted in MICU of Department of General Medicine, Jhalawar Medical College, Jhalawar, Rajasthan. 106 cases of patients above 18 years with Sepsis were included in the study. In our study, the mean age of the study population was 45.92 with standard deviation 18.008 years. Also, out of 106 total cases, 52.83% were males and 47.17% were females. In this study, 42.45% patients presented with fever, 52.83% patients were tachypnoeic and 73.58% patients had tachycardia on admission. In our study, 39.62% patients admitted in ICU had a SOFA score of >8, 42.85% patients with SOFA score of >8 died, patients with SOFA score of >8 had a higher duration of ICU/Hospital stay and increased requirement of mechanical ventilation support (p-value<0.05).

INTRODUCTION:

Sepsis is a common and deadly disease. Sepsis with Multi-organ dysfunction syndrome (MODS) is a common cause of Intensive Care Unit (ICU) morbidity and mortality.[1] The specific clinical manifestations of sepsis are quite variable, depending on the initial site of infection, the offending pathogen, the pattern of acute organ dysfunction, the underlying health of the patient and the delay in initiating the treatment.[2]

The diagnosis of sepsis relies on overt symptoms of systemic illness causing a change in the vital parameters of the patient as well as indication of infection through microbial cultures and serology. Even in the modern era with availability of sophisticated modalities in critical care units, sepsis remains as a syndrome which is difficult to define and diagnose, resulting in high morbidity and mortality. The importance of early recognition of sepsis with initiation of treatment and its effects on survival outcome have long been recognised. Due to this non- availability of easy diagnostic scores and criteria, multiple attempts are being made to develop scores which can identify sepsis early.

There are many scoring systems which are helpful in determining the severity and outcome of patients with sepsis. They allow a quantification of the severity of illness and a probability of in-hospital mortality. The use of these prognostic models helps in providing meaningful information to physicians when discussing a patient's prognosis with the relatives.

The first Sepsis-related Organ Failure Assessment score, later called the Sequential Organ Failure Assessment (SOFA) score, was introduced in 1994.[3] The aim was to quantify the severity of the patient's illness based on the degree of organ dysfunction, serially over time.

Our study focuses mainly on Sequential Organ Failure Assessment (SOFA) scores. It mainly aims at assessing morbidity and mortality of patients with Multi organ dysfunction syndrome and sepsis and prognosticating the patients by using SOFA score. Use of SOFA scoring in clinical trials is commonly performed and constitutes a routine component of data collection for clinical trials in the intensive care unit (ICU). Shabir et al (2017) in a study assessed the accuracy of SOFA score in predicting outcome of patients in ICU. The initial SOFA score had a strong statistical correlation with mortality (P value <0.05). SOFA score of 0-6 had 0% mortality, 6-9 had 25%, 9-15 had 85% and >15 had 100% mortality. Thus, it was concluded that SOFA score is a simple and effective tool in predicting outcome in patients.[4]

AIMS & OBJECTIVES:

To analyze the correlation of SOFA score to prognosis in critically-ill patients.

MATERIALS & METHODS :

106 cases of patients above 18 years with Sepsis were included in the study. SOFA score was calculated for each patient on Day-1 and then serial measurements were done. The data was analysed for correlation between the SOFA score and outcomes in critically-ill patients.

SOFA score was calculated as follows :-[3]

SOFA score	1	2	3	4
Respiration(a)				
PaO2/FIO2 (mm Hg)	>300	300-220	219-100	<100
SaO2/FIO2	221-301	142-220	67-141	<67
Coagulation				
Platelets ×103/mm3	<150	<100	<50	<20
Liver				
Bilirubin (mg/dL)	1.2-1.9	2.0-5.9	6.0-11.9	>12.0
CVS (b)				
Hypotension	MAP <70	Dopamine ≤5 or dobutamine (any)	Dopamine >5 or norepinephrine ≤0.1	Dopamine >15 or norepinephrine >0.1
CNS				
Glasgow Coma Score	13-14	10-12	6-9	<6
Renal				
Creatinine (mg/dL) or urine output (mL/d)	1.2-1.9	2.0-3.4	3.5-4.9 or <500	>5.0 or <200

MAP, Mean Arterial Pressure; CNS, central nervous system; SaO2, peripheral arterial oxygen saturation. a-PaO2/FIO2 ratio was used preferentially. If not available, the SaO2/FIO2 ratio was used b-vasoactive mediations administered for at

least 1 hr (dopamine and norepinephrine µmg/kg/min).

RESULTS:

In our study, the mean age of the study population was 45.92 with standard deviation 18.008 years. Also, out of 106 total cases, 52.83% were males and 47.17% were females. In our study, 42.45% patients presented with fever, 52.83% patients were tachypnoeic and 73.58% patients had tachycardia on admission. In our study, 39.62% patients admitted in ICU had a SOFA score of >8, 42.85% patients with SOFA score of >8 died, patients with SOFA score of >8 had a higher duration of ICU/Hospital stay and increased requirement of mechanical ventilation support.

Table: Correlation of SOFA score (Day1) with Survival.

SOFA SCORE(D1)	Survived		
	NO	YES	TOTAL
<4	3	17	20
4 to 8	6	38	44
>8	18	24	42
Total	27	79	106

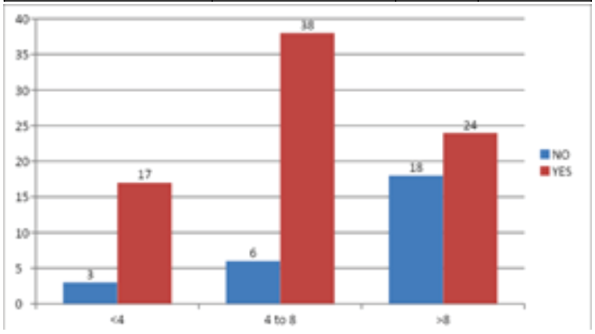

Figure: Comparison of SOFA score (Day 1) with No. of patients who survived.

CONCLUSIONS:

The trend of SOFA score was progressively declining in patients who had a good prognosis, leading to improvement in multi-organ dysfunction. The trend of SOFA score was either stable at a higher value or was increasing in patients who had a bad prognosis (p-value < 0.05).

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