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CORRELATION OF THROMBOCYTOPENIA IN ADULT PATIENTS WITH SEPSIS ADMITTED IN MICU OF GIMS GADAG

General Medicine

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ABSTRACT

Background Sepsis is a syndromic response to infection and is frequently a final common pathway to death from many infectious diseases1. Patients with thrombocytopenia who are admitted to the intensive care unit (ICU) with sepsis are at an increased risk of mortality, compared with patients admitted to the ICU with normal platelet levels2. This article will emphasize the relation between sepsis and thrombocytopenia, resuming the mechanism in which sepsis tends to cause thrombocytopenia and the latest management. **Objectives** To study Incidence, Risk Factors, and association of thrombocytopenia with clinical outcomes in adult patients with sepsis **Materials And Methods** It is a Prospective observational study of 100 patients with sepsis admitted in medicine ICU. Patients who were admitted in medicine icu with sepsis or septic shock screened by qSOFA score and having thrombocytopenia were included in the study. **Results And Discussions** Among 100 patients 60 had thrombocytopenia and 40 did not have it. Among those 60 people with sepsis, 55% were male and 45% were female. 71% patients were having thrombocytopenia on day of hospital admission and 28% people developed thrombocytopenia during the course of hospital stay. Among them 31.6% had mild thrombocytopenia, 13% had moderate thrombocytopenia, 40% had severe thrombocytopenia and 15% had very severe thrombocytopenia. Among them 76% developed acute kidney injury, 31% developed acute liver injury, 31% developed ards,85% needed inotropic support 53% needed mechanical ventilation. Among the patient 25% survived and 75% died among the dead 26% had mild thrombocytopenia, 15% had moderate thrombocytopenia, 40% had severe thrombocytopenia, and 17% had very severe thrombocytopenia. **Conclusion** From the present study it was concluded that Mortality is more in patients who had thrombocytopenia in sepsis and grater decrease in platelet count increase mortality. Thus thrombocytopenia is a independent risk factor of mortality.

KEYWORDS

Sepsis, Thrombocytopenia, Qsofa

INTRODUCTION

Sepsis is defined as "life threatening organ dysfunction caused dysregulated host response to infection" When circulatory and cellular metabolism anomalies occur, sepsis is called septic shock. Most of the risk factors for sepsis are related to a patient's susceptibility to infection[7]. Immunosuppressive disorders such as old and young age, acquired immune deficiency syndrome (AIDS), cancer, immunosuppressive medicines, diabetes, alcohol addiction, indwelling catheters, and other factors that influence skin integrity put patients at risk for infection[8]. Thrombocytopenia is a form of organ dysfunction and increases morbidity and mortality. Thrombocytopenia (platelet count < 150,000/µl) is common in critically ill patients with an estimated incidence of 20%–40% at some point during the intensive care unit (ICU) stay[3]. Thrombocytopenia is recognised as an independent risk factor for mortality in ICU patients[4].

Although thrombocytopenia in sepsis has not been associated as a mortality marker in numerous articles, its mere presence is a burden on the patient and the clinician managing it[5]. This article will emphasize the relation between sepsis and thrombocytopenia, resuming the mechanism in which sepsis tends to cause thrombocytopenia and the latest management.

AIMS AND OBJECTIVES

To study thrombocytopenia in adult patients with sepsis –its Incidence, Risk Factors and Its association with clinical outcome

MATERIALS AND METHODS

It is a Prospective observational study of 100 patients with sepsis admitted in medicine ICU at GIMS Gadag.

Patients who were admitted in medicine icu with sepsis or septic shock screened by qSOFA score and having thrombocytopenia were included in the study. These patients were studied for risk factors of thrombocytopenia and its outcomes.

Inclusion Criteria

- All patient with sepsis or septic shock admitted in medicine ICU of GIMS Gadag
- First ICU admission for patients who had multiple ICU admission
- Age > 13 yrs.

Exclusion Criteria

- Patients with Cirrhosis
- Patients with Hematologic Malignancy
- Patients who are chronic Alcoholics
- Patients having Chronic thrombocytopenia Disorder (IPP, PPP, Hypersplenism)
- Patients on Active chemo therapy
- Patients with Mechanical Heart Valve
- Non consenting patients

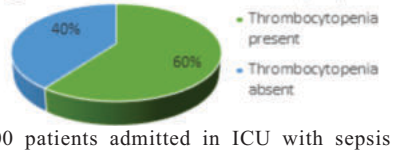
RESULTS

1) Incidence of thrombocytopenia in sepsis

Table no. 1

	Thrombocytopenia present	Thrombocytopenia Absent
Patients With Sepsis	60	40
Percentage	60 %	40 %

fig . 1 Incidence of thrombocytopenia



Among 100 patients admitted in ICU with sepsis 60% had thrombocytopenia 40% did not have thrombocytopenia.

2) Sex wise distribution of patients of thrombocytopenia with sepsis

Table no. 2

Sex	Sex wise distribution of patients of thrombocytopenia (N=60,%)
Male	33 (55%)
Female	27 (45%)
Total	60 (100%)

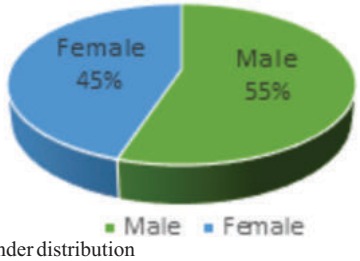


Fig no 2;- gender distribution

Among 60 patients 45% were female and 55% were male

3)Age wise distribution of patients of thrombocytopenia with sepsis

Table no. 3

Age group	Number of patients having sepsis with thrombocytopenia
14-20	2 (3.3%)
21-30	5 (8.33%)
31-40	5 (8.33%)
41-50	7 (11.6%)
51-60	15 (25%)
61-70	13 (21.6%)
71-80	11 (18.3%)
81-90	2 (3.3%)
Total	60

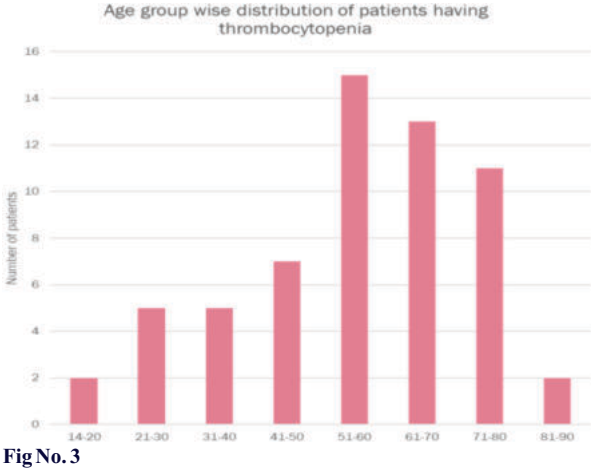
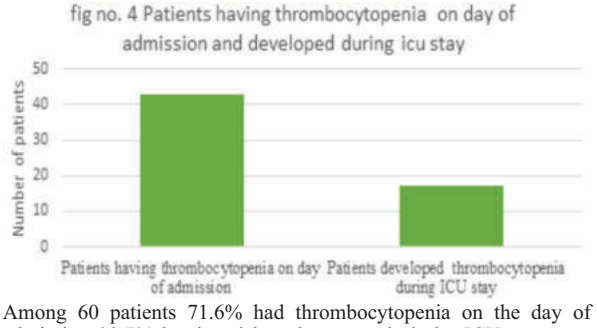


Fig No. 3

3.3% belonged to age group between 14-20, 8.3% belonged to group 21-30 years. 8.3% belonged to age group 31-40 years. 11.6% belonged to age group 41-50 years. 25% belonged to 51-60 years. 21.6% belonged to 61-70 years. 18.3% belonged to 71-80 years. 3.3% belonged to 81-90 years.

4) Thrombocytopenia in patient of sepsis on day of admission and during ICU stay

	No of patients	Percentage
Patients having thrombocytopenia on day of admission	43	(71.6%)
Patients developed thrombocytopenia during ICU stay	17	(28.7%)

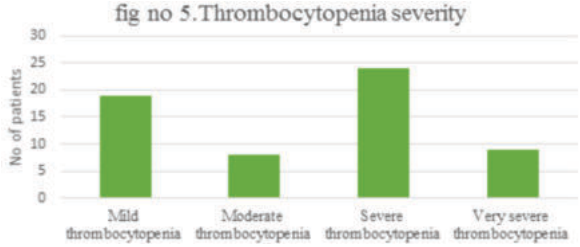


Among 60 patients 71.6% had thrombocytopenia on the day of admission. 28.7% developed thrombocytopenia during ICU stay.

5)Thrombocytopenia severity

Table no. 5

	No of patients (N=60)	Percentage
Mild (150000-100000)	19	31.6 %
Moderate (100000-50000)	8	13.3 %
Severe(50000-20000)	24	40 %
Very severe(< 20000)	9	15 %

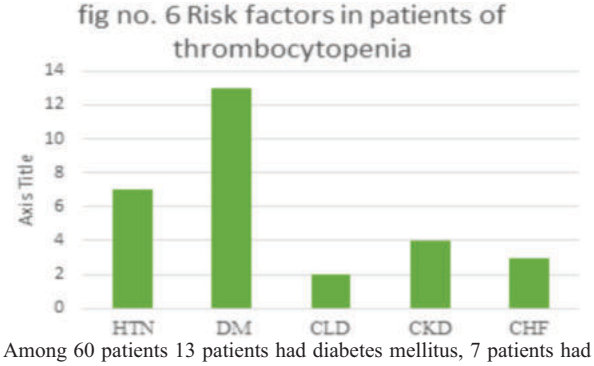


Among 60 patients 31.6% had mild thrombocytopenia, 13.3% had moderate thrombocytopenia, 40% had severe thrombocytopenia, 15% had very severe thrombocytopenia.

6)Risk factors in patient of sepsis with thrombocytopenia

Table no. 6

Risk factors	Thrombocytopenia present (n =60)	Percentage
DM	13	(21.6%)
HTN	7	(11.6%)
CLD	2	(3.3%)
CKD	4	(6.6%)
CHF	3	(5%)

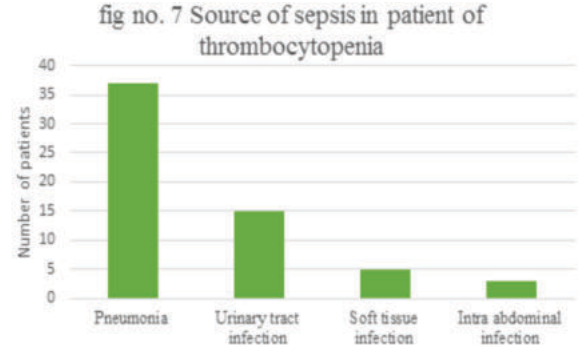


Among 60 patients 13 patients had diabetes mellitus, 7 patients had hypertension 2 patients had chronic liver disease, 4 patients had chronic kidney disease, 3 patients had congestive heart failure.

7) Source of sepsis in patients of thrombocytopenia

Table no. 7

Source of sepsis	Patients of thrombocytopenia (N=60)	Percentage
Pneumonia	37	61.6 %
Urinary tract infection	15	25.0 %
Soft tissue infection	5	8.33 %
Intra abdominal infection	3	5 %



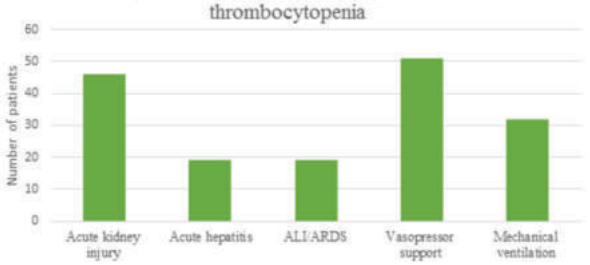
For 69.1% of patients source of sepsis was pneumonia, for 25% of people source of sepsis is UTI, for 8.33% of people source of sepsis was soft tissue infection and for 5% of people source of sepsis was intraabdominal infection.

8) Multiple Organ Dysfunction

Table No. 8

	Clinical outcomes in patients of thrombocytopenia (N=60,%)
Acute kidney injury	46 (76.6%)
Acute Liver injury	19 (31.6%)
ALI/ARDS	19 (31.6%)
Vasopressor support	51 (85 %)
Mechanical ventilation	32 (53 %)

Fig no.8 Clinical outcomes in patients of thrombocytopenia



Among the study group 76% of patients experienced acute kidney injury, 31% had acute hepatitis, 31% had ARDS, 85% of patients required vasopressor support, 53% of patients required mechanical ventilator support.

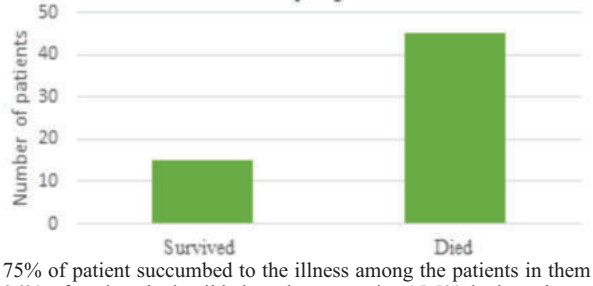
9)Mortality of patient of sepsis with thrombocytopenia

Table no. 9

	Survived	Died
Patients of sepsis with thrombocytopenia (N=60)	15 (25 %)	45 (75%)

Thrombocytopenia Grading	Thrombocytopenia with sepsis (N=60)	Death (N=45)	Percentage
Mild	19	12	26.66 %
Moderate	8	7	15.55%
Severe	24	18	40%
Very severe	9	8	17.77%

fig no 9 Patients of sepsis with thrombocytopenia



75% of patient succumbed to the illness among the patients in them 26% of patient had mild thrombocytopenia, 15.5% had moderate thrombocytopenia, 40% of patient had severe thrombocytopenia, 17% had very severe thrombocytopenia.

DISCUSSION

Among 100 patients 60 had thrombocytopenia and 40 did not have it. Among those 60 people with sepsis, 55% were male and 45% were female. 71% patients were having thrombocytopenia on day of hospital admission and 28% people developed thrombocytopenia during the course of hospital stay. Among them 31.6% had mild thrombocytopenia, 13% had moderate thrombocytopenia, 40% had severe thrombocytopenia and 15% had very severe thrombocytopenia. Among them 76% developed acute kidney injury, 31% developed acute liver injury, 31% developed ards,85% needed inotropic support 53% needed mechanical ventilation. Among the patient 25% survived and 75% died among the dead 26% had mild thrombocytopenia, 15% had moderate thrombocytopenia, 40% had severe thrombocytopenia, and 17% had very severe thrombocytopenia.

CONCLUSION

- From the present study it was concluded that thrombocytopenia in sepsis was more prevalent in male and old age groups. Most of thrombocytopenia was severe type. Most common source of sepsis was pneumonia followed by urinary tract infection.
- Thrombocytopenia in sepsis had complications like acute kidney injury, acute hepatitis, acute respiratory distress syndrome and required vasopressor support , mechanical ventilation support.
- Mortality is more in patients who had thrombocytopenia in sepsis and grater decrease in platelet count increase mortality.Thus thrombocytopenia is a independent risk factor of mortality.
- Early administration of appropriate broad-spectrum antibiotics, collection of blood for culture before antibiotic administration, advances in training, surveillance, monitoring and prompt initiation of supportive care for organ dysfunction can decrease mortality.

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