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Original Article

Paediatrics Section

Severity Patterns and Outcome of Thrombocytopenia among Neonates with Culture-confirmed Gram-positive and Gram-negative Septicaemia: A Retrospective Cohort Study

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ABSTRACT

Introduction: Neonatal septicaemia is a recognised cause of neonatal thrombocytopenia, with an incidence of 18-35% among neonates admitted to the Neonatal Intensive Care Unit (NICU). The pathogenesis involves endothelial damage triggering reticuloendothelial destruction of platelets, resulting in consumption exceeding production. Blood culture remains the gold standard for diagnosis of neonatal sepsis, and thrombocytopenia is an independent predictor of sepsis-related mortality in neonates.

Aim: To analyse the occurrence, severity patterns, and clinical implications of thrombocytopenia among neonates with culture-confirmed gram-positive and gram-negative septicaemia.

Materials and Methods: A retrospective cohort study was conducted in the Department of Paediatrics, Karwar Institute of Medical Sciences, Karwar, Karnataka, India, from April 2024 to September 2025. A total of 126 full-term and preterm neonates with culture-proven gram-positive or gram-negative septicaemia who developed thrombocytopenia (platelet count <1,50,000/mm^3) were included. Both groups were compared with respect to maternal and neonatal risk factors, onset, severity and duration of thrombocytopenia, haematological parameters, complications, and patient outcome. Data analysis and manuscript preparation were carried out between November 2025 and February 2026. Data were analysed using the Chi-square test and Mann-Whitney U test; p-value <0.05 was considered statistically significant.

Results: Among 126 thrombocytopenic neonates with culture-proven sepsis, gram-negative organisms were identified in 79 (62.7%) and gram-positive in 47 (37.3%). Gram-negative septicaemia was associated with greater frequency and severity of thrombocytopenia. Mortality was significantly higher in gram-negative septicaemia (42/79; 53.2%) compared to gram-positive septicaemia (15/47; 31.9%) (p-value=0.002). The distribution of thrombocytopenia severity (mild/moderate/severe) differed significantly between groups (p-value <0.001).

Conclusion: Gram-negative neonatal septicaemia was associated with greater frequency and severity of thrombocytopenia, higher rates of haemorrhagic complications, and significantly higher mortality compared to gram-positive septicaemia. Prematurity and Low Birth Weights (LBW) are significant predisposing factors. Early identification of gram-negative bacteraemia should prompt aggressive management to improve neonatal outcomes.

Keywords: Infections, Intensive care unit, Mortality, Newborn, Platelet count, Prognosis

INTRODUCTION

Neonatal thrombocytopenia, defined as a platelet count below 1,50,000/mm^3, is a common haematological abnormality encountered in the NICU, with an incidence of 18-35% among admitted neonates compared to 0.7-0.9% in the general newborn population. It is classified as mild (1,00,000-1,50,000/mm^3), moderate (50,000-<1,00,000/mm^3), or severe (<50,000/mm^3), and complicates the clinical course in approximately 22-25% of NICU admissions [1]. Neonatal sepsis is a recognised and important cause of thrombocytopenia in this population [2]. Blood culture remains the gold standard for diagnosis of neonatal sepsis, with Early-Onset Sepsis (EOS) defined as bacteraemia within the first 72 hours of life and Late-Onset Sepsis (LOS) occurring thereafter [3]. The pathogenesis involves endothelial damage triggered by circulating bacterial toxins, leading to platelet activation, reticuloendothelial destruction, and consumption exceeding production [4]. Thrombocytopenia is an independent predictor of sepsis-associated mortality in neonates [5].

Gram-negative organisms, through endotoxin-mediated mechanisms, are known to cause more severe platelet destruction compared to gram-positive organisms [6]. However, most available studies report overall thrombocytopenia rates in neonatal sepsis without stratifying outcomes by gram staining status, leaving a clinically relevant gap in the literature [6,7]. The present study was therefore conducted to analyse the occurrence, severity patterns, and clinical implications of thrombocytopenia among neonates with culture-confirmed gram-positive and gram-negative septicaemia, with the aim of identifying gram status as a potential prognostic marker in neonatal sepsis.

MATERIALS AND METHODS

A retrospective cohort study was conducted in the Department of Paediatrics, Karwar Institute of Medical Sciences (KRIMS), Karwar, Karnataka, India, after obtaining ethical clearance from the Institutional Ethics Committee (Approval No.: IEC/KRIMS/O/49/2025-26). Medical records of neonates admitted to the NICU between April 2024 and September 2025 were reviewed retrospectively over a period of 18 months. Data analysis and manuscript preparation were carried out between November 2025 and February 2026.

Inclusion criteria: Full-term and preterm neonates with culture-proven gram-positive or gram-negative septicaemia who developed thrombocytopenia (platelet count <1,50,000/mm^3) [1,8] during their NICU admission were included in the study.

Sepsis screen was considered positive if two or more of the following parameters were abnormal: Total Leucocyte Count (TLC) <5,000/mm^3, Absolute Neutrophil Count (ANC) <1,800/mm^3, Immature-to-Total (IT) neutrophil ratio >0.2, or CRP >10 mg/dL. Thrombocytopenia severity was graded as mild (1,00,000-1,50,000/mm^3), moderate (50,000- <1,00,000/mm^3), and severe (<50,000/mm^3) [1,8].

Exclusion criteria: Neonates with positive cultures for both gram-positive and gram-negative organisms simultaneously, those transferred within 24 hours of onset of clinical sepsis, and those with other identifiable causes of thrombocytopenia- including Intrauterine Growth Restriction (IUGR), birth asphyxia, placental insufficiency, intra-uterine infections (excluded by TORCH screening), neonatal alloimmune thrombocytopenia, and maternal immune thrombocytopenic purpura were excluded from the study [1,9].

Sample size and calculation: Sample size was calculated using the formula:

$n= Z^2P (1-P)/d^2$

Where:

Z= 1.96 (standard normal variate at 5% level of significance)

P= 30.3% (0.303)- proportion of neonates with culture-proven sepsis who developed thrombocytopenia, as reported by Abobakr Abd Alazem E et al., [9],

d= 8% (0.08) - allowable error

$n= (1.96)^2 \times 0.303 \times 0.697/(0.08)^2 = 126$

Study Procedure

The thrombocytopenic neonates were divided into two groups based on the gram staining status of blood culture isolates- gram-positive and gram-negative. Both groups were compared with respect to maternal risk factors, neonatal parameters, onset and severity of thrombocytopenia, haematological indices, complications, and final outcome. Data were collected from the medical records of neonates admitted to the NICU of Karwar institute of medical sciences, Karwar.

Maternal data included mode of delivery, and Premature Rupture of Membranes (PROM). PROM was defined as rupture of foetal membranes before the onset of labour [10]. Neonatal data included gender, gestational age, and birth weight. Birth weight was classified using the Fenton 2013 growth chart: Small for Gestational Age (SGA) was defined as birth weight below the 10th percentile for gestational age, Appropriate for Gestational Age (AGA) as birth weight between the 10th and 90th percentiles and Large for Gestational Age (LGA) as birth weight above the 90th percentile [11].

The EOS was defined as bacteraemia occurring within the first 72 hours of life and LOS as bacteraemia occurring after 72 hours of life [3]. The day of onset and duration of thrombocytopenia, occurrence of haemorrhage and its site, and platelet transfusion details were recorded. Laboratory data included initial platelet count at the onset of clinical sepsis, lowest platelet counts during the sepsis episode, quantitative C-Reactive Protein (CRP), ANC, IT neutrophil ratio, and blood culture results including gram staining status and organism isolated.

STATISTICAL ANALYSIS

Data were coded and entered using the Statistical Package for the Social Sciences (SPSS, IBM, version 25.0). Data were summarised using mean, standard deviation, median, minimum, and maximum for quantitative variables, and using frequency (count) and relative frequency (percentage) for categorical variables. Comparisons between quantitative variables were performed using the non-parametric Mann-Whitney U test. For comparing categorical data, the Chi-square (χ^2) test was performed. Fisher's exact test was used when the expected frequency was <5. A p-value of <0.05 was considered statistically significant.

RESULTS

This retrospective cohort study was carried out among all neonates with culture-proven sepsis who developed thrombocytopenia during NICU admission over a period of 18 months. Out of 1,649 neonates admitted to the NICU, 239 neonates (14.5%) were diagnosed with culture-proven sepsis. Of these, 126 neonates (52.7%) developed thrombocytopenia and formed the study cohort, with a male predominance of 56.3% (n=71 males vs 55 females) [Table/Fig-1].

Study parameters	Frequency (N=126) (%)
Mode of delivery	
LSCS	62 (49.2)
NVD	64 (50.8)
PROM	
No	90 (71.4)
Yes	36 (28.6)
Gender	
Female	55 (43.7)
Male	71 (56.3)
Gram status	
Gram-negative	79 (62.7)
Gram-positive	47 (37.3)
Type of onset of sepsis	
EOS (<72 hours)	65 (51.6)
LOS (≥72 hours)	61 (48.4)
Gestational age	
Preterm (< 37 weeks)	77 (61.1)
Term (≥ 37 weeks)	49 (38.9)
Birth weight	
VLBW (<1.5 kg)	12 (9.5)
LBW (1.5-2.5 kg)	91 (72.2)
Normal (>2.5 kg)	23 (18.3)
Birth weight for gestational age (Fenton 2013)	
SGA (<10th percentile)	79 (62.7)
AGA (10th-90th percentile)	36 (28.6)
LGA (>90th percentile)	11 (8.7)
Severity of thrombocytopenia at onset of sepsis [1,8]	
Mild (1,00,000-1,50,000/mm^3)	58 (46.0)
Moderate (50,000-<1,00,000/mm^3)	30 (23.8)
Severe (<50,000/mm^3)	38 (30.2)

[Table/Fig-1]: Overall distribution of demographic, perinatal, and clinical characteristics among neonates with culture-proven sepsis and thrombocytopenia (N=126).
EOS: Early onset sepsis; LOS: Late onset sepsis; VLBW: Very low birth weight; LBW: Low birth weight; PROM: Premature rupture of membranes; LSCS: Lower segment caesarean section; NVD: Normal vaginal delivery; SGA: Small for gestational age; AGA: Appropriate for gestational age; LGA: Large for gestational age

Among 126 neonates with culture-proven sepsis and thrombocytopenia, 79 (62.7%) had gram-negative septicaemia and 47 (37.3%) had gram-positive septicaemia. The mean gestational age was 37.0±2.9 weeks. Based on the Fenton 2013 growth chart, the mean birth weight percentile was 20.8±2.2; 62.86% (n=79) were SGA, 28.57% (n=36) were AGA, and 8.57% (n=11) were LGA. EOS was encountered in 51.5% (n=65) of neonates and LOS in 48.5% (n=61) [Table/Fig-1].

At the onset of sepsis, the mean TLC was 35,094±13957/mm³, mean platelet count was 85,889±43585/mm³, mean IT ratio was 0.20±0.10, and mean ANC was 146.5±46.6/mm³. The mean day of onset of thrombocytopenia was day 4 of admission, and the mean duration of thrombocytopenia was 8.8±4 days [Table/Fig-2].

Parameter	Minimum	Maximum	Mean±SD
ANC (/mm³)	65	250	146.5±46.6
IT ratio	0.10	0.30	0.20±0.10
Days of hospital stay	2	30	13.5±7.0
Gestational age (weeks)	28	44	37.0±2.9
Birth weight (kg)	1.0	6.0	2.1±0.6
Platelet count at onset (/mm³)	11,000	1,50,000	85,889±43,585
Lowest platelet count (/mm³)	1,500	1,23,000	54,218±37,793
TLC (/mm³)	10,000	66,000	35,094±13,957
Day of onset of thrombocytopenia	1	22	4±2.4
Duration of thrombocytopenia (days)	1	22	8.8±4.0

[Table/Fig-2]: Descriptive statistics of haematological and clinical parameters among neonates with culture-proven sepsis and thrombocytopenia (N=126).
ANC: Absolute neutrophil count; IT Ratio: Immature to total neutrophil ratio; TLC: Total leucocyte count; SD: Standard deviation

The PROM was significantly more common in the gram-negative group (45.6%; n=36) compared to the gram-positive group where no case of PROM was recorded (0%; n=0) (Fisher's exact test, p-value <0.001). Mode of delivery did not differ significantly between the two groups (p-value=0.963). Maternal platelet count was lower in the gram-negative group (2.06±0.82 ×10⁵ /mm³) compared to the gram-positive group (2.64±0.56×10⁵ /mm³) p-value <0.001 [Table/Fig-3].

Parameter	Gram positive (n=47)	Gram negative (n=79)	p-value
Mode of delivery			
LSCS	23 (48.9)	39 (49.4)	0.963
NVD	24 (51.1)	40 (50.6)	
PROM			
No	47 (100.0)	43 (54.4)	<0.001*
Yes	0	36 (45.6)	
Maternal platelet count (×10⁵/mm³)			
Mean±SD	2.64±0.56	2.06±0.82	<0.001*

[Table/Fig-3]: Comparison of maternal factors between gram-positive and gram-negative septicaemic neonates.
PROM: Premature rupture of membranes; LSCS: Lower segment caesarean section; NVD: Normal vaginal delivery; *Significant (p<0.05)

Gram-negative septicaemia was associated with significantly lower mean platelet count at onset (76,848±47,717 vs 1,01,085±30,412/mm³; p-value<0.001), lower gestational age (36.0±2.5 vs 38.6±2.7 weeks; p-value<0.001), and higher IT ratio (0.23±0.05 vs 0.20±0.05; p-value<0.001) compared to gram-positive septicaemia. Gram-negative septicaemia was also associated with significantly higher ANC (155±46 vs 132±45/mm³; p-value=0.008), and significantly longer hospital stay (p-value=0.002). CRP, lowest platelet count, TLC, and birth weight did not differ significantly between groups [Table/Fig-4].

Parameter	Gram positive (n=47)	Gram negative (n=79)	p-value
Platelet count at onset (/mm³)	1,01,085±30,412	76,848±47,717	<0.001*
Lowest platelet count (/mm³)	55,372±31,476	53,532±41,273	0.779
TLC (/mm³)	33,062±17,732	36,304±11,082	0.263
ANC (/mm³)	132±45	155±46	0.008*
IT Ratio	0.20±0.05	0.23±0.05	<0.001*
CRP (mg/dL)	70.04±14.97	70.75±48.82	0.078
Days of hospital stay	12.2±7.5	15.8±5.4	0.002*
Gestational age (weeks)	38.6±2.7	36.0±2.5	<0.001*
Birth weight (kg)	2.1±0.4	2.1±0.7	0.716

[Table/Fig-4]: Comparison of haematological and laboratory parameters between gram-positive and gram-negative septicaemic neonates.
ANC: Absolute neutrophil count; IT Ratio: Immature to total neutrophil ratio; TLC: Total leucocyte count; CRP: C-reactive protein; *Significant (p<0.05)

The most commonly isolated organism was Non-*E.coli*/Non-*Klebsiella* Enterobacteriaceae (without further speciation by laboratory) in 34.1% (n=43) of cases, followed by MRSA in 24.6% (n=31) and *Escherichia coli* in 17.4% (n=22). Methicillin sensitive *Staphylococcus aureus* accounted for (5.5%; n=7), followed by Coagulase-Negative Staphylococci (CONS) (3.9%; n=5). Among gram-negative organisms, *Acinetobacter* species (without further speciation by laboratory) accounted for 1.5% (n=2), *Klebsiella pneumoniae* for 5.5% (n=7), *Klebsiella* species (without further speciation by laboratory) for 3.9% (n=5), *Pseudomonas* species for 2.3% (n=3), and *Acinetobacter baumannii* for 0.7% (n=1) of isolates [Table/Fig-5].

Organism	Gram status	n (%)
Non-*E. coli*/Non-*Klebsiella* enterobacteriaceae	Gram-negative	43 (34.1)
Methicillin-Resistant *Staphylococcus aureus* (MRSA)	Gram-positive	31 (24.6)
E. coli	Gram-negative	22 (17.4)
Methicillin-Sensitive *Staphylococcus aureus* (MSSA)	Gram-positive	7 (5.5)
Klebsiella pneumoniae	Gram-negative	7 (5.5)
Acinetobacter species	Gram-negative	2 (1.5)
Klebsiella species	Gram-negative	5 (3.9)
CONS	Gram-positive	5 (3.9)
Pseudomonas	Gram-negative	3 (2.3)
Acinetobacter baumannii	Gram-negative	1 (0.7)

[Table/Fig-5]: Distribution of microorganisms isolated from culture-proven septicaemic neonates with thrombocytopenia.
CONS: Coagulase-negative Staphylococci; MRSA: Methicillin-resistant *Staphylococcus aureus*

Among the 126 neonates with sepsis and thrombocytopenia, 58 (46.0%) had mild thrombocytopenia, 30 (23.8%) had moderate thrombocytopenia, and 38 (30.2%) had severe thrombocytopenia at onset of sepsis.

Gram-negative septicaemia was associated with significantly greater severity of thrombocytopenia both at the onset of sepsis and at the nadir platelet count (p-value<0.001 for both). Neonates with gram-negative septicaemia developed severe thrombocytopenia at onset significantly more frequently (n=34; 43.0%) compared to those with

gram-positive septicaemia (n=4; 8.5%). At the nadir platelet count, severe thrombocytopenia was more prevalent in gram-negative neonates (n=43; 54.4%) compared to gram-positive neonates (n=22; 46.8%) [Table/Fig-6].

Parameter	Gram positive (n=47)	Gram negative (n=79)	p-value
Gender			
Female	23 (48.9)	32 (40.5)	0.356
Male	24 (51.1)	47 (59.5)	
Sepsis onset			
EOS (<72 hours)	22 (46.8)	41 (51.9)	0.581
LOS (≥72 hours)	25 (53.2)	38 (48.1)	
No. of blood cultures done			
1	6 (12.8)	17 (21.5)	0.236
2	33 (70.2)	55 (69.6)	
3	8 (17.0)	7 (8.9)	
CRP (mg/dL)			
< 30	0	5 (6.3)	0.078
> 30	47 (100)	74 (93.7)	
Platelet transfusion			
No	34 (72.3)	37 (46.8)	0.005*
Yes	13 (27.7)	42 (53.2)	
Severity of thrombocytopenia at onset of sepsis			
Mild	23 (48.9)	35 (44.3)	<0.001*
Moderate	20 (42.6)	10 (12.7)	
Severe	4 (8.5)	34 (43.0)	
Severity of Thrombocytopenia at Nadir Platelet Count			
Mild	0	16 (20.3)	<0.001*
Moderate	25 (53.2)	20 (25.3)	
Severe	22 (46.8)	43 (54.4)	
Haemorrhage			
None	36 (76.6)	37 (46.9)	0.002*
Pulmonary	10 (21.3)	28 (35.4)	
Pulmonary and GI	1 (2.1)	14 (17.7)	
Final outcome			
Death	15 (31.9)	42 (53.2)	0.002*
Discharged	32 (68.1)	37 (46.8)	

[Table/Fig-6]: Comparison of clinical parameters and outcomes between gram-positive and gram-negative septicaemic neonates with thrombocytopenia..
EOS: Early onset sepsis; LOS: Late onset sepsis; CRP: C-reactive protein; *Significant (p<0.05)

DISCUSSION

In the present study, culture-proven sepsis was identified in 239 of 1649 (14.5%) NICU admissions, of which 126 (52.7%) developed thrombocytopenia. This sepsis prevalence of 14.5% was consistent with figures reported from other developing country tertiary care NICUs. Akbarian-RZ and Silveira RC, reported a pooled neonatal sepsis prevalence of approximately 16% in Iranian tertiary NICUs [12], and Procianoy RS et al., reported similar rates from Brazilian NICUs, reflecting a comparable burden across low- and middle-income country settings [13].

A male predominance of 56.3% (71 males vs 55 females) was observed in this study, which was in agreement with previously published literature reporting higher susceptibility of male neonates to sepsis, possibly due to X-linked immune regulatory factors [14,15].

Gram-negative organisms were identified in 62.7% (n=79) of culture-proven thrombocytopenic neonates, consistent with the predominance of gram-negative bacteraemia reported from Indian subcontinent NICUs. Abobakr Abd Alazem E et al., similarly reported gram-negative predominance (61.6% of isolates) in their study of thrombocytopenic neonates with culture-proven sepsis [9]. Lin C et al., also demonstrated that gram-negative bacteria were significantly more likely to cause thrombocytopenia compared to gram-positive organisms in bloodstream infections [6]. The predominance of gram-negative organisms in this setting likely reflects environmental colonisation pressures, antibiotic stewardship gaps, and the burden of device-associated infections in resource-limited NICUs.

Prematurity and LBW were important predisposing factors in this cohort- 61.1% (n=77) of neonates were preterm and 72.2% (n=91) were LBW. This was consistent with Shane AL and Stoll BJ who identified prematurity and immunological immaturity as the most important risk factors predisposing neonates to sepsis, due to prolonged hospitalisation and increased exposure to invasive procedures [14]. Mukhopadhyay S and Puopolo KM similarly identified prematurity and associated immunological vulnerability as significant risk factors predisposing neonates to EOS [15]. However, the present study also demonstrated that full-term and appropriate-weight neonates were not fully protected- 38.9% of the study cohort was term neonates and 28.57% were AGA- underscoring that gram-negative sepsis can affect any neonate regardless of gestational age.

Neonatal thrombocytopenia was identified in 52.7% of culture-proven septic neonates in the present study, which was higher than the 30.3% reported by Abobakr Abd Alazem E et al., this variation may reflect differences in study population and sepsis severity [9]. The underlying mechanism in sepsis involves endothelial activation and megakaryocyte suppression triggered by bacterial toxins, leading to platelet consumption exceeding production [16]. Endotoxins released by gram-negative bacteria are particularly potent stimulators of platelet aggregation and destruction, explaining the greater severity of thrombocytopenia seen in gram-negative sepsis [6,17].

Gram-negative septicaemia was associated with significantly greater frequency and severity of thrombocytopenia at onset of sepsis (43% severe in gram-negative vs 8.5% in gram-positive; p-value<0.001) and at nadir platelet count (54.4% severe in gram-negative vs. 46.8% in gram-positive; p-value<0.001). This was in agreement with Abobakr Abd Alazem E et al., who reported that the frequency of severe thrombocytopenia was significantly higher in gram-negative sepsis at both onset and nadir platelet count [9]. Arif SH et al., similarly reported that thrombocytopenia in gram-negative neonatal sepsis was more severe compared to gram-positive sepsis [16].

Platelet transfusion was required in 53.2% of gram-negative septicaemic neonates compared to 27.7% of gram-positive septicaemic neonates (p-value=0.005). The higher transfusion requirement in gram-negative sepsis reflects the greater severity of thrombocytopenia in this group. Sola VM and Bercovitz RS noted that platelet count alone is a poor predictor of bleeding risk in neonates, and that the decision to transfuse should be guided by clinical context rather than threshold alone [2].

Pulmonary haemorrhage was the most common haemorrhagic complication observed, occurring in 38 neonates (30.2%), with a significantly higher proportion in gram-negative septicaemia (35.4% vs 21.3%; p-value=0.002). Combined pulmonary and gastrointestinal

haemorrhage occurred in 15 neonates (11.9%), predominantly in gram-negative sepsis (17.7% vs 2.1%). Abobakr Abd Alazem E et al., similarly reported that haemorrhagic complications were significantly more frequent in gram-negative septicaemic neonates with thrombocytopenia [9].

Mortality was significantly higher in gram-negative septicaemic neonates (53.2%; n=42/79) compared to gram-positive septicaemic neonates (31.9%; n=15/47) (p-value=0.002). Abobakr Abd Alazem E et al., reported an overall mortality of 40.6% in their cohort, with a significantly higher mortality rate of 46.3% in gram-negative sepsis with thrombocytopenia [9]. Goh GL et al., also reported that gram-negative sepsis was an independent risk factor for mortality among preterm VLBW neonates with LOS [5]. This significant difference in mortality underscores the greater severity of gram-negative septicaemia and its haematological consequences in neonates.

Infection control measures, early identification of gram-negative bacteraemia, judicious platelet transfusion, and management of prematurity-related risk factors are vital in reducing morbidity and mortality in these neonates. Maternal interventions including regular antenatal visits, appropriate management of hypertension and PROM, judicious use of caesarean section, and antenatal corticosteroids when preterm labour is anticipated are essential. Neonatal strategies including early targeted antibiotic therapy, minimising invasive procedures, and avoiding prolonged mechanical ventilation are recommended to reduce the burden of gram-negative neonatal sepsis and its haematological complications [18].

Limitation(s)

The study was limited by its retrospective design with possible information bias, being a single - centre study limiting generalisability, and the inability to assess long-term neurodevelopmental outcomes.

CONCLUSION(S)

Neonatal thrombocytopenia was a common haematological complication of culture-proven neonatal sepsis, occurring in 52.7% of affected neonates in this study. Gram-negative septicaemia was associated with significantly greater frequency and severity of thrombocytopenia compared to gram-positive septicaemia, both at onset and at nadir platelet count. Prematurity and LBWs were important predisposing factors. Pulmonary haemorrhage was the most common haemorrhagic complication, occurring predominantly in gram-negative septicaemic neonates. Mortality was significantly higher in gram-negative septicaemia compared to gram-positive septicaemia. Early identification of gram-negative bacteraemia on blood culture should therefore alert the clinician to the high risk of severe thrombocytopenia, haemorrhagic complications, and adverse outcome, warranting closer monitoring and timely intervention.

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