Assessment of platelet indices as a marker of neonatal sepsis

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Abstract

Background: Neonatal sepsis remains a leading cause of neonatal morbidity and mortality worldwide. Early diagnosis is difficult because clinical manifestations are often nonspecific. Platelet indices including platelet count (PC), mean platelet volume (MPV), and platelet distribution width (PDW).So, objective of this study to assess the significance of platelet indices asbiomarkers for early detection of neonatal sepsis.

Objective: To assess the significance of platelet indices as markers of neonatal sepsis.

Methods: A comparative cross-sectional study was conducted among neonates admitted with clinical features suggestive of sepsis in the Neonatal Intensive Care Unit (NICU)over a period of 18 months. A total of 126 neonates were enrolled, 63 neonates with clinical, probable, or confirmed sepsis and 63 healthy neonates. Blood samples were collected at admission for septic screen, blood cultures, platelet count, MPV, and PDW. Statistical analysis was performed using SPSS version 27.0. Receiver Operating Characteristic (ROC) curve analysis was used to determine diagnostic.

Results: Platelet indices were significantly difference between case vs control group. MPV higher (12.31 vs 9.04), PDW higher (19.98 vs 14.28), platelet count lower (124.68 vs 291.41) in case group ($p<0.001$). Most common platelet abnormality was low platelet count with high MPV and PDW (33.3%). ROC analysis showed high diagnostic accuracy for MPV (AUC 0.890) and PDW (AUC 0.872), while platelet count had poor accuracy (AUC 0.134); all statistically significant ($p=0.001$).

Conclusion: Septic neonates having lower hemoglobin, total leukocyte count, and absolute neutrophil count, along with markedly elevated inflammatory markers such as CRP, Micro ESR, and I/T ratio. Platelet indices were significantly deranged, with increased MPV and PDW and decreased platelet count in the case group. Overall, the study concludes that platelet indices, particularly MPV and PDW, along with conventional sepsis markers, are valuable tools in the early diagnosis of neonatal sepsis.

Keywords: Neonatal sepsis, platelet count (PC), mean platelet volume (MPV), platelet distribution width (PDW), CRP, NICU

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Introduction

Neonatal sepsis represents a critical systemic infectious condition occurring within the first 28 days of life and remains one of the most important contributors to neonatal morbidity and mortality worldwide.Recent epidemiological data indicate a pooled neonatal sepsis incidence of 2,824 cases per 100,000 live births with an associated mortality rate of 17.6%.[1] The World Health Organization reports that 99% of neonatal sepsis-related deaths occur in sub-Saharan Africa alone contributing

around 300,000 deaths annually.[2] Bacterial sepsis and meningitis continue to be a major cause of mortality and morbidity in new born, particularly in preterm infants.[3] Early- onset infection occurs in first 3 days after birth and is generally the consequence of infection caused by organisms acquired during the perinatal period. Late-onset infection occurs after 3 days and is caused by organisms that are typically acquired in the post-natal period.[1] The diagnosis of neonatal sepsis remains challenging due to inherent limitations of currently available diagnostic modalities. Blood culture, considered the gold standard for definitive diagnosis, has critically low sensitivity in neonates. In developing countries, culture-negative sepsis constitutes the majority of cases. The diagnostic challenge is further compounded by the non-specific clinical presentation of neonatal sepsis.[4] Traditional biomarkers, particularly C-reactive protein (CRP) and other acute phase reactants also demonstrate suboptimal diagnostic accuracy. CRP sensitivity ranges from 45% to 66.66% with specificity between 76.19% and 95%, limiting its role as a standalone diagnostic marker.[5] Thrombocytopenia frequent haematological finding in neonatal sepsis and often appears early in the course of bacteraemia making it an early diagnostic and prognostic indicator. Sepsis-associated thrombocytopenia is multifactorial. During sepsis, platelet activation, aggregation, and consumption lead to characteristic alterations in platelet count and morphology.[6] In addition to platelet count, platelet morphology and size indices provide valuable diagnostic insight. During sepsis, increased platelet consumption triggers compensatory megakaryopoiesis, leading to the release of larger, immature and more functionally active platelets into circulation, thereby elevating MPV values. Thus, elevated MPV alongside thrombocytopenia reflects ongoing platelet consumption and destruction in sepsis, supporting the diagnostic relevance of platelet indices in sepsis evaluation. [7,8] The clinical utility of platelet indices in the diagnosis of neonatal sepsis is supported by several inherent advantages over conventional diagnostic modalities. Complete blood count with differential analysis and platelet indices is widely available, rapidly obtainable, cost-effective and routinely performed as part of standard neonatal evaluation, even in resource-limited healthcare settings.

Materials & Method

Study setting & participants

Acomparative cross-sectional study was conducted at Neonatal Intensive Care Unit (NICU), Department of Paediatrics at National Institute of Medical Sciences (NIMS) Hospital, Jaipur, Rajasthan. The study included neonates admitted with clinical, probable or confirmed neonatal sepsis India, over a period of 18 months from June2024 to Feb 2026. The study received approval from the Hospital Ethics Committee (IEC approval letter no.: IEC/P-743/2024 & date: 22.05.2024) & written informed consent was obtained from all participants, parents or legal surrogates. The purpose of conducting the study in this tertiary care hospital setting was to assess the utility of platelet indices as markers of neonatal sepsis and compare their values between septic and healthy neonates.

Study Population

A total of 126 neonates were enrolled, including 63 neonates with clinical, probable, or confirmed sepsis and 63 healthy controls matched for gestational age, sex, and birth weight

Inclusion criteria

Neonates with clinical features suggestive of sepsis.

Neonates with positive sepsis screen.

Culture-confirmed neonatal sepsis

Exclusion Criteria

Congenital thrombocytopenia.

Perinatal asphyxia.

Respiratory distress syndrome.

Congenital heart disease.

Major congenital anomalies.

Recent blood product transfusion

Platelet Indices[9]

Platelet Count (PC) = 1.5–4 lakh/µl

Mean Platelet Volume (MPV) =7.5–11.7fl

Platelet Distribution Width (PDW) =10–17.9%

Data Collections

A pre-designed case proforma was used to collect information for each study subject. The proforma included demographic details, clinical history, examination findings and results of laboratory investigations. Additional investigations performed included liver function tests, renal function tests, random blood sugar levels, and chest X-ray.

Statistical Analysis

Data were analyzed using SPSS version 27. Continuous variables were expressed as mean ± SD, while categorical variables were expressed as percentages. Student's t-test and Chi-square test were used for comparisons. A p-value <0.05 was considered statistically significant.

Flow diagram of the study methodology

All neonates suspected for sepsis admitted in the NICU.

Inclusion & exclusion criteria applied including consent from parents / guardians.

History, examination and laboratory evaluation to be recorded in study proforma.

Platelet parameters (data) to be collected.

Statistical analysis

Result and Conclusion

Results

In this study 126 neonates were enrolled in which 63were case & 63 were control.

Table 1 Presence of general parameters among both the groups

Parameter		Control	Case	P value*
Mean Age (days)		3.94±1.991	4.13±2.808	0.192
Gender	Male (N)	35 (55.55%)	30 (47.6%)	0.373
	Female (N)	28 (44.45%)	33 (52.4%)	
Mean Birth Weight (kg) Mean ±SD		2.6324±0.22297	2.7352±0.37999	0.066
Mean Gestational Age (week)Mean±SD		38.22±1.817	36.69±2.353	0.032
Risk Factors	Prematurity(N)	11 (17.5%)	30 (47.6%)	0.001
	Leaking per vaginum (N)	3 (4.8%)	27 (42.9%)	0.001
	Maternal fever (N)	2 (3.2%)	20 (31.7%)	0.001
Clinical Features	Feed Intolerance (N)	4 (6.3%)	36 (57.1%)	0.001
	Lethargy (N)	3 (4.8%)	34 (54.0%)	0.001
	Poor perfusion (N)	4 (6.3%)	27 (33.3%)	0.001

*P < 0.05

- In table 1 showed in control group, 35 (55.6%) were males &28 (44.4%) were female& in 63 case, 30 (47.6%) males & 33 (52.4%) were female. The mean birth weight was 2.6324±0.22297 kg in control & 2.7352±0.37999 kg in case group. The mean age in study was 3.94±1.991 days in the control group and 4.13±2.808 days in the case group. The mean gestational age was higher in the control group (38.22±1.817 weeks) compared to the case group (36.69±2.353 weeks). This difference was statistically significant (p=0.032), indicating that lower gestational age was more associated with the case group. Prematurity was the most common risk factor in case group than leaking per vagina & maternal fever. Comparison of risk factors revealed that of the case group compared to the control group with a highly significant different (p=0.001). History of feed intolerance was more common than lethargy & poor perfusion in case group. Clinical findings feed in the case group compared to the control group, which was statistically significant (p=0.001).

Table 2 Comparison of Sepsis Screen among both the groups

Sepsis Screen	Group	N	Mean	Std. Deviation	T-value	P-value*
Hb	Control Group	63	17.71	2.548	14.019	<0.001
	Case Group	63	11.22	2.647		
TLC	Control Group	63	8248.19	1432.94	25.028	<0.001

	Case Group	63	2850.51	936.38		
ANC	Control Group	63	2935.10	588.28	16.219	<0.001
	Case Group	63	1484.95	396.97		
CRP	Control Group	63	5.80	2.37	-9.920	<0.001
	Case Group	63	47.03	32.91		
Micro ESR	Control Group	63	9.14	2.51	-10.949	<0.001
	Case Group	63	48.03	28.08		
I/T Ratio	Control Group	63	0.11	0.03	-9.837	<0.001
	Case Group	63	0.24	0.10		

*P < 0.05

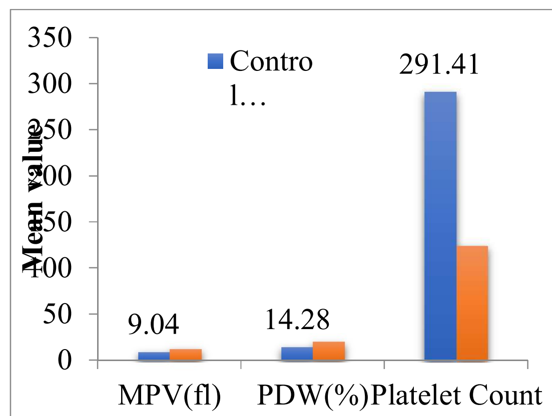
In table 2 the comparison of sepsis screening parameters demonstrated marked differences between the two groups. The control group had significantly higher mean hemoglobin (17.71±2.548) compared to the case group (11.22±2.647). Similarly, total leukocyte count (8248.19±1432.94 vs 2850.51±936.38) and absolute neutrophil count (2935.10±588.28 vs 1484.95±396.97) were significantly higher in the control group. In contrast, inflammatory markers such as CRP (47.03±32.91 vs 5.80±2.37), Micro ESR (48.03±28.08 vs 9.14±2.51), and I/T ratio (0.24±0.10 vs 0.11±0.03) were markedly elevated in the case group. All these differences were highly statistically significant (p<0.001), indicating strong association of altered sepsis parameters with the case group.

Table 3 Comparison of Platelet Parameters among both the groups

Platelet Parameters	Group	N	Mean	Std. Deviation	T-value	P-value*
MPV(fl)	Control Group	63	9.04	1.21	-10.725	<0.001
	Case Group	63	12.31	2.10		
PDW(%)	Control Group	63	14.28	1.77	-9.860	<0.001
	Case Group	63	19.98	4.24		
Platelet Count	Control Group	63	291.41	56.98	9.318	<0.001
	Case Group	63	124.68	130.09		

*P < 0.05

Table 3 showed that platelet parameter analysis revealed significant variations between the groups. The mean MPV was significantly higher in the case group (12.31±2.10) compared to the control group (9.04±1.21). Similarly, PDW was elevated in the case group (19.98±4.24) compared to controls (14.28±1.77). In contrast, platelet count was significantly lower in the case group (124.68±130.09) compared to the control group (291.41±56.98). All these differences were statistically highly significant (p<0.001), suggesting that platelet indices are markedly altered in the case group.



Graph 1: Comparison of Platelet Parameters among both the groups

Table 4Platelet indices of Case group (63)

Final interpretation	No.	Percentage
Normal parameters	16	25.4%
Low platelet count	3	4.8%
Low platelet count, High MPV	1	1.6%
Low platelet count, High PDW	1	1.6%
Low platelet count, High MPV and PDW	42	66.6%

In table 4 final interpretation of the case group revealed that the majority of neonates had combined platelet abnormalities. The most common finding was low platelet count with both high MPV and high PDW, observed in 42 neonates (66.6%). A smaller proportion had normal parameters (25.4%), while isolated abnormalities such as low platelet count alone (4.8%) or in combination with either high MPV (1.6%) or high PDW (1.6%) were relatively rare. This suggests that combined platelet derangements were the predominant pattern among septic neonates.

Table 5 Platelet Indices sensitivity, specificity, PPV & NPV

Marker	Cut off	Sensitivity	Specificity	PPV	NPV	AUC (reported)
MPV (fl)	> 11.7fl	76.4 %	92.7 %	91.3%	79.7%	0.890
PDW (%)	> 17.9%	58.2 %	99.7 %	99.4%	70.5%	0.872
Platelet count (s×10 ³/μl)	< 150	57.7 %	99.3 %	98.9%	70.1%	0.134 †

†Effective AUC for platelet count (direction-corrected) = 0.866.

PPV = Positive Predictive Value. NPV = Negative Predictive Value. AUC = Area Under Curve.

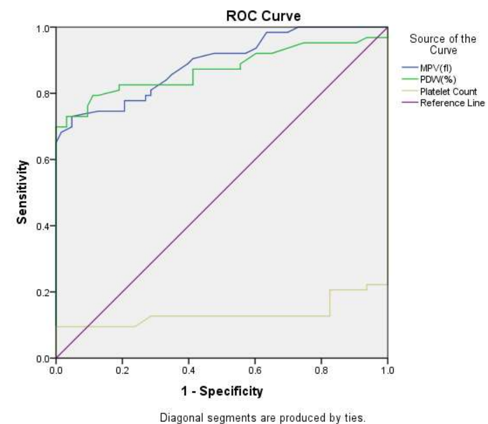
Table 5showed that sensitivity 76.4%, Specificity 92.7%, PPV 91.3%& NPV79.7%of MPV. Sensitivity58.2%, specificity99.7%, PPV99.4%& NPV70.5%of PWD& sensitivity 57.7%, specificity 99.3%, PPV98.9%& NPV 70.1%platelet count. Sensitivity& NPV of MPV more compare to platelet count &PWD & specificity& PPV of PWD & platelet countcompare to MPV.

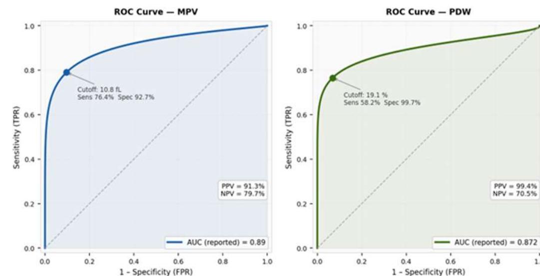
Table 6 Area Under the Curve of MPV, PDW and Platelet count

Test Result Variable(s)	Area	Std. Error[a]	Asymptotic Sig.[b]	Asymptotic 95% Confidence Interval	
				Lower Bound	Upper Bound
MPV(fl)	.890	.028	.000	.835	.946
PDW(%)	.872	.035	.000	.804	.940
Platelet Count	.134	.040	.000	.056	.211

a under the nonparametric assumption*b* Null hypothesis: true area = 0.5

The test result variable(s): MPV(fl), PDW(%), Platelet Count has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.





In table 6ROC analysis demonstrated that MPV and PDW were strong predictors of neonatal sepsis, with AUC values of 0.890 and 0.872, respectively, both statistically significant ($p<0.001$). Platelet count showed an AUC of 0.134 in the reported analysis, which likely reflects inverse test direction because lower values are associated with sepsis. Therefore, platelet count should be interpreted with direction correction, yielding an effective AUC of 0.866. The confidence intervals for MPV (0.835-0.946) and PDW (0.804-0.940) further support their reliability as diagnostic markers.

Discussion

The present study was undertaken to evaluate the role of platelet indices along with conventional sepsis screening parameters and to analyze their association with maternal risk factors, clinical findings, and laboratory profiles in neonates. The findings of this study are discussed in comparison with existing literature to assess their clinical relevance and applicability.In our study, mean age was 3.94±1.991 days in controls and 4.13±2.808 days in cases; the difference was statistically not significant (χ^2=15.979; p=0.192). Similarly, Elsaaed et al. (2021)[10] enrolled 100 neonates (50 cases, 50 controls) with a mean age of 4.65±0.5 days for their study population, which closely parallels the mean age of 4.13±2.808 days in the present study's case group. Mittal et al. (2018)[11]also reported a mean age of 9.61±3.88 days in controls and 8.76±3.24 days in cases with no statistically significant difference (p=0.237), with a predominance of early neonatal presentations in their cohort as well. In our study, males constituted 55.6% of controls and 47.6% of cases, while females were 44.4% and 52.4% respectively, with no significant difference (χ^2=0.794; p=0.373). This is in keeping with the majority of compared studies. Gururaju et al. (2022)[12] reported that a male-to-female ratio of 1.1:1 in cases and 1.17:1 in controls (p=0.687) among their 396 neonates, confirming no significant gender difference. Haque et al. (2025)[13], in their 200-neonate study, found 54 males and 46 females among cases vs. 62 males and 38 females among controls (p=0.252). In the present study, mean birth weight was 2.63±0.22 kg in the control group and 2.74±0.38 kg in the case group, with no statistically significant difference (p=0.066). Similar, Shaw et al. (2025)[14] observed in their prospective observational study of 170 neonates reported a mean birth weight of 2.51±0.57 kg in the clinical sepsis group and 2.48±0.59 kg in the culture-positive sepsis group (p=0.74), again non-significant. Kaur et al. (2024)[15] also observed in their retrospective study of 60 neonates (30 controls, 30 culture-positive sepsis) reported comparable birth weight distributions with <1.5 kg in 0% of controls and 10% of cases, 1.5–2.5 kg in 56.67% vs. 43.33%, and >2.5 kg in 43.33% vs. 46.67% with no significant difference(p=0.168). In our study, the control group had greater term neonate representation (39–41 weeks: 50.79%) while the case group had predominant preterm neonates (35–38 weeks: 61.90%), with a significantly lower mean gestational age in cases (36.698±2.353 weeks vs. 38.222±1.817 weeks; χ^2=4.068; p=0.032). This preterm predominance in the sepsis group is well supported across comparable studies. Similar Panda et al. (2022)[16] reported mean gestational ages of 33.29±3.78 weeks in sepsis cases and 34.18±4.21 weeks in controls (p=0.282), with a notably lower mean gestational age in cases, though the difference was non-significant in their smaller cohort.

We observedof risk factors in present study, leaking PV (42.9% cases vs. 4.8% controls), maternal fever (31.7% vs. 3.2%), and preterm delivery (47.6% vs. 17.5%) were significantly more common in the case group (all p=0.001). Similar, Kaur et al. (2024)[15] reported that the proportion of neonates with preterm birth was higher in their culture-positive sepsis group, and leaking PV was more frequently noted among cases than controls ($p<0.05$). Islam et al. (2024)[17], also noted in 180-neonate case-control study at Assam Medical Collegethat, leaking per vaginum (PROM >18 hours) and maternal fever were significantly more common among their sepsis cases than controls ($p<0.05$), mirroring the present study's findings.

We observed that clinical present in the present study, feed intolerance (57.1% cases vs. 6.3% controls), lethargy (54.0% vs. 4.8%), and poor perfusion (33.3% vs. 6.3%) were all significantly more prevalent in the case group (all p=0.001). These clinical presentations align well with the existing literature. Similarly, Panda et al. (2022)[16] reported that among their 43 blood culture-positive sepsis neonates, the most common clinical

presentations were respiratory distress (n=31), shock (n=25), feed intolerance (n=13), and meningitis (n=6), confirming that feed intolerance is a frequently observed early clinical sign in neonatal sepsis. Shaw et al. (2025)[14] also documented in their 170-neonate that, the culture-positive sepsis group had higher rates of feeding intolerance and lethargy compared to the clinical sepsis group, with these signs being significantly more prevalent than in healthy neonates. Madani et al. (2019)[18] also reported that feeding intolerance, lethargy and circulatory compromise were the predominant early clinical signs in neonatal sepsis cohorts at their respective institutions.

In the present study, all sepsis screen parameters - Hb (11.22 vs. 17.71 g/dl), TLC (2850 vs. 8248/mm³), ANC (1485 vs. 2935/mm³), CRP (47.03 vs. 5.80 mg/L), micro-ESR (48.03 vs. 9.14 mm/hr), and I/T ratio (0.24 vs. 0.11) were highly significantly different between cases and controls (all $p<0.001$). These findings are strongly corroborated across comparable studies. Islam et al. (2024)[17] reported that their sepsis screen parameters including CRP, TLC, ANC, micro-ESR, and I/T ratio were all significantly elevated in the case group compared to controls ($p<0.001$), using identical sepsis screen criteria - ANC <1800 cells/mm³, I/T ratio >0.2, CRP >1 mg/L, and micro-ESR exceeding age-adjusted thresholds as employed in the present study. Choudhary et al. (2017)[19] similarly found significantly deranged hematological parameters including low Hb, neutropenia, elevated CRP, and raised I/T ratio in their 100 sepsis cases. Haque et al. (2025)[20]confirmed that CRP, TLC, ANC, and micro-ESR were all significantly abnormal in their sepsis group compared to controls ($p<0.001$).

In the present study, all three platelet parameters - MPV (12.31±2.10 fl in cases vs. 9.04±1.21 fl in controls), PDW (19.98±4.24% vs. 14.28±1.77%), and platelet count (124.68±130.09 ×10³/mm³ vs. 291.41±56.98 ×10³/mm³) were highly significantly different between both groups (all $p<0.001$). These findings are strongly corroborated by Niharika et al. (2024)[21] reported a mean MPV of 12.36±1.94 fl in cases vs. 8.36±2.81 fl in controls (p=0.0001), a mean PDW of 19.45±2.63% vs. 16.37±1.27% (p=0.0001), and platelet count of 1.01±0.42 lacs/mm³ vs. 2.63±0.72 lacs/mm³ (p=0.0001). Thrombocytopenia was present in 66% of sepsis cases, MPV was elevated in 62%, and PDW elevated in 68%. Mohan et al. (2025)[22]also observed that MPV of 11.2±1.8 fl in cases vs. 9.1±1.2 fl in controls ($p<0.001$), PDW of 16.5±2.3% vs. 12.8±1.9% ($p<0.001$), and platelet count of 134.6±72.4 ×10⁹/L vs. 225.8±64.2 ×10⁹/L ($p<0.001$). Panda et al. (2022)[16] found mean platelet count of 1.04±0.92 lakhs/mm³ in culture-positive sepsis vs. 2.02±0.96 lakhs/mm³ in controls ($p<0.001$), with MPV of 10.64±2.42 fl vs. 8.23±1.43 fl ($p<0.001$) and PDW of 14.70±4.09% vs. 11.52±2.80% ($p<0.001$). Majumdar et al. (2021)[23] similarly noted that a decreased platelet count was invariably associated with elevated MPV and PDW in their sepsis group. Yadav et al. (2024)[24] both confirmed in their respective prospective cohorts that MPV, PDW, and platelet count were all highly significantly different between septic and non-septic neonates, with effect sizes and p-values consistent with the present study.

In the present study, the most prevalent platelet parameter combination in sepsis cases was low platelet count + high MPV + high PDW, present in 42 cases (33.3%), while isolated thrombocytopenia occurred in only 3 cases (2.4%), isolated low platelet counts with high MPV in 1 case (0.8%), isolated low platelet counts with high PDW in 1 case (0.8%), and normal parameters in 16 cases (12.7%). This pattern of combined platelet parameter derangement has been consistently by Niharika et al. (2024)[21], in their 50-case South India cohort, found that thrombocytopenia occurred in 66%, elevated MPV in 62%, and elevated PDW in 68% of sepsis cases. Mohan et al. (2025)[22] similarly found that in their 40 sepsis cases, thrombocytopenia was the most frequent finding, with moderate-to-severe thrombocytopenia concentrated in the sepsis group; severe thrombocytopenia (<50×10⁹/L) was present in 15% of cases exclusively, while only 45% of septic neonates maintained normal platelet counts. Panda et al. (2022)[16], in their culture-positive cohort, confirmed that MPV and PDW elevation consistently accompanied thrombocytopenia in their sepsis group, with isolated thrombocytopenia being less common than combined parameter derangement.

In present study, sensitivity 76.4%& Specificity 92.7%, of MPV. Sensitivity 58.2%&specificity 99.7% of PWD & sensitivity 57.7%&specificity 99.3% of platelet count. Sensitivity & NPV of MPV more compare to platelet count & PWD & specificity & PPV of PWD & platelet count compare to MPV. A Similar study was done byManazir et al. (2022)[25], reported that the cut off of MPV is 10.75 fL to detect sepsis having 77% sensitivity and a 65% specificity. Septic patients have a higher PDW than controls.

When ROC analysis was preformedascertain to effect of sepsison MPV and PDW with area under the curve (AUC) values of 0.890 and 0.872 respectively, both showing excellent diagnostic accuracy and statistically significant results (p=0.000). In contrast, platelet count had a very low AUC of 0.134, indicating poor diagnostic performance. The confidence intervals for MPV (0.835–0.946) and PDW (0.804–0.940) further support their reliability as diagnostic markers. MPV is the most useful platelet parameter due to its highest sensitivity and largest AUC. PDW and

platelet counts are highly specific marker. These findings suggest that MPV and PDW are useful indicators for predicting sepsis, whereas platelet count alone is not a reliable predictor.

Limitations of the study

The study was conducted at a single tertiary care center, which may limit the generalizability of the findings to other settings. The sample size was relatively limited (126 neonates), which may affect the statistical power and broader applicability of results. Being a hospital-based study, it may not represent the true community prevalence of neonatal sepsis. Selection bias may be present as only admitted NICU cases were included. Some clinical findings depend on subjective assessment (e.g., lethargy, feed intolerance), which may introduce observer bias. Temporal relationship and causality cannot be firmly established for all risk factors. Platelet indices may be influenced by other conditions (e.g., prematurity, perinatal stress), which were not fully controlled. Advanced biomarkers and molecular diagnostic tests were not included, limiting comparison with newer diagnostic modalities.

Conclusion

We conclude that neonatal sepsis is significantly associated with multiple maternal, perinatal, clinical, and laboratory factors. Septic neonates having lower hemoglobin, total leukocyte count, and absolute neutrophil count, along with elevated inflammatory markers such as CRP, Micro ESR, and I/T ratio. Platelet indices are significantly deranged, with increased MPV and PDW and decreased platelet count in neonatal sepsis. Overall, the study concludes that platelet indices, particularly MPV and PDW, along with conventional sepsis markers, are valuable tools in the early diagnosis of neonatal sepsis. These parameters can aid in timely identification and management, thereby potentially reducing morbidity and improving neonatal outcomes.

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