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Red Cell Distribution Width and 30-Day Mortality in Adult Patients With Sepsis: A Prospective Observational Cohort Study

Archa M. Ullas Kumar [1], Lindo Thomas [2], Shivani C. Bhagwat [2], Amith Narayan [1], Rajasekharan Chandrasekharan [2]

1. Internal Medicine, Azeezia Institute of Medical Sciences and Research, Kollam, IND 2. Internal Medicine, Sree Uthradom Thirunal Academy of Medical Sciences, Thiruvananthapuram, IND

Corresponding author: Rajasekharan Chandrasekharan, rajasekharanchandrasekharan@gmail.com

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Abstract

Introduction

Sepsis remains a major challenge in critical care, contributing to significant morbidity, mortality, and life-threatening organ dysfunction. Although established scoring systems such as the Sequential Organ Failure Assessment (SOFA) and Acute Physiology and Chronic Health Evaluation (APACHE) are valuable for assessing disease severity, their application may be limited by resource requirements. Red cell distribution width (RDW), a routinely available parameter derived from a complete blood count (CBC), has emerged as a potential prognostic marker in sepsis. This study aimed to evaluate the association between admission RDW, SOFA score, and 30-day mortality in patients with sepsis.

Methods

This prospective observational cohort study was conducted at a tertiary care teaching hospital in South Kerala, India, from May 2024 to November 2025. A total of 144 adults with sepsis and a quick Sequential Organ Failure Assessment (qSOFA) score ⩾2 were enrolled using convenience sampling. Patients with chronic haematological disorders, recent blood loss, or medications affecting red blood cell indices were excluded. Admission RDW was obtained from routine CBC testing, and SOFA scores were assessed to determine the severity of organ dysfunction. Patients were followed for 30-day mortality. Statistical analysis was performed using IBM SPSS Statistics for Windows, Version 26.0 (Released 2018; IBM Corp., Armonk, NY, USA), with the chi-square test and Spearman's correlation used as appropriate.

Results

The mean admission SOFA score was 8.58 ± 2.70, with a median of 8 (range: 2-14). Among the 144 patients, 45 (31.3%) died within 30 days, while 99 (68.8%) survived. Thirty-day mortality was significantly higher among patients with RDW >17.3% than among those with RDW ⩽17.3% (41.3% vs. 18.8%, $p = 0.004$). Furthermore, RDW demonstrated a moderate positive correlation with SOFA score (Spearman's $\rho = 0.474$, $p < 0.001$), indicating that higher RDW values were associated with greater organ dysfunction. These findings suggest a significant association between elevated RDW, disease severity, and short-term mortality in sepsis.

Conclusion

Elevated admission RDW was significantly associated with increased 30-day mortality and higher SOFA scores in patients with sepsis. Given its availability through routine haematological investigations, RDW may offer a simple, inexpensive, and accessible adjunct for early risk stratification, particularly in resource-limited settings. Although RDW should not replace established severity assessment tools, its integration into routine clinical evaluation may help identify patients at increased risk of adverse outcomes. Further prospective studies are needed to validate the optimal RDW cut-off and establish its independent prognostic value in sepsis.

Categories: Emergency Medicine, Internal Medicine, Infectious Disease
Keywords: complete blood count (cbc), mortality, red cell distribution width (rdw), sepsis, sequential organ failure assessment (sofa)

Introduction

Sepsis remains one of the greatest challenges in critical care and is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection, with a quick Sequential Organ Failure Assessment (qSOFA) score ⩾2 points [1]. Despite advances in diagnosis and treatment, it continues to cause high global morbidity and mortality, with ICU mortality often exceeding 25%-30%. This ongoing burden highlights the need for simple, reliable, and cost-effective biomarkers for early risk stratification and

prognosis. While scoring systems like SOFA and Acute Physiology and Chronic Health Evaluation (APACHE) are effective, they can be time-consuming, especially in low-resource settings [2,3].

Red cell distribution width (RDW), a routine complete blood count (CBC) parameter, measures variation in red blood cell size. Traditionally used in diagnosing anaemia and other haematological disorders, RDW has recently gained attention as a prognostic marker in systemic inflammatory, cardiovascular, renal, and thromboembolic diseases [4]. Its clinical relevance is linked to inflammation and disrupted erythropoiesis during critical illness [5].

RDW is emerging as a valuable predictor of sepsis severity and outcomes [6]. Elevated RDW at admission and rising levels during illness are associated with higher mortality, likely reflecting the combined impact of inflammation, metabolic stress, and organ dysfunction, and can serve as a tool for early risk assessment of long-term outcomes in critical care [7].

The prognostic significance of RDW in sepsis stems from inflammation-induced oxidative stress, endothelial dysfunction, and impaired erythropoiesis [8,9]. Pro-inflammatory cytokines, including IL-6 and TNF-α, disrupt iron metabolism and red blood cell maturation, leading to increased variability in erythrocyte size. Oxidative damage and nutritional deficiencies further contribute to anisocytosis, making elevated RDW a potential indicator of systemic inflammation and organ dysfunction in sepsis [10].

Despite its potential prognostic value, the clinical application of RDW in sepsis is limited by variations in cut-off values, heterogeneous study populations, and confounding factors such as anaemia, chronic inflammation, and malnutrition. Its independent predictive value also remains uncertain when adjusted for established severity scores [5]. Further research is needed to establish optimal thresholds and clarify its role as an adjunct to conventional prognostic tools.

This study aimed to evaluate the association between RDW and 30-day mortality in patients with sepsis by comparing outcomes between those with RDW >17.3% and those with RDW <17.3%. It also assessed the correlation between RDW and SOFA score to explore the potential of RDW as a simple, readily available adjunct for prognostic assessment.

Materials And Methods

This prospective observational cohort study was conducted at a tertiary care teaching hospital catering to both urban and rural populations of South Kerala. The study period was 18 months, from May 2024 to November 2025.

The sample size was calculated based on a reference 28-day mortality rate (p) of 40%, as reported by Garg [10] among ICU patients with sepsis and a qSOFA score ⩾2. The calculation used a 95% confidence level ($Z\alpha/2 = 1.96$) and an absolute allowable error (l) of 8% (20% relative precision of p).

The sample size formula used was $n = \frac{Z^2 \times p \times q}{d^2}$, where n = required sample size, Z = 1.96 for a 95% confidence level, p = anticipated mortality proportion = 0.40, q = 1 - p = 0.60, and d = absolute precision = 0.20 × 0.40 = 0.08. The sample size was determined to be 144 using the formula

$$n = \frac{1.96^2 \times 0.40 \times 0.60}{0.08^2} = 144.$$

The study population consisted of adult subjects who had sepsis and were admitted to or attending the Department of General Medicine and who fulfilled the eligibility criteria during the study period. This included all adult patients over 18 years diagnosed with sepsis who presented to the hospital within three days of symptom onset. Consequently, a total of 144 subjects were enrolled using convenience sampling. All clinical evaluations and laboratory measurements were performed in the inpatient and outpatient services of the Department of General Medicine and the institution's attached central laboratory.

The inclusion criteria comprised adults aged ⩾18 years who were diagnosed with sepsis, had a qSOFA score ⩾2, presented within three days of symptom onset, and provided written informed consent to participate in the study.

The exclusion criteria included patients with known chronic haematological disorders, such as sickle cell anaemia or thalassemia; patients with a history of significant blood loss in the preceding three months; and patients using medications affecting red blood cell indices, such as erythropoietin, pentoxifylline, cyclosporine, or nitrates.

Eligible subjects were enrolled after obtaining informed consent. Detailed clinical history, general and systemic examinations, and baseline vital parameters were recorded at admission. Sepsis was identified using qSOFA criteria. Admission blood samples were analysed for routine laboratory parameters, including

CBC, from which RDW values were obtained. Serial RDW measurements were not performed. The RDW cut-off value of 17.3% was selected based on previously published evidence, particularly the prospective observational study by Jandial et al. [11]. In that study, the optimal RDW cut-off for predicting 30-day mortality was determined using receiver operating characteristic (ROC) curve analysis and Youden's index, which identified 17.3% as the optimal threshold. We adopted this previously established cut-off to categorise patients into high RDW (>17.3%) and lower RDW (≤17.3%) groups for evaluating the association with 30-day mortality. This approach was also supported by other Indian studies, including Jain et al. [12], who reported a comparable cut-off of 17.15% for predicting 30-day mortality in patients with sepsis. We acknowledge that the 17.3% threshold was adopted from previous literature and was not independently derived using ROC analysis in the present study. The SOFA score was calculated at admission using relevant clinical and laboratory parameters. All patients received treatment according to standard institutional sepsis management protocols. Outcomes were assessed at 30 days after admission, with sepsis-related deaths recorded as mortality events; deaths due to other causes were excluded.

Data were entered into Microsoft Excel (Microsoft Corporation, Redmond, WA, USA) and analysed using IBM SPSS Statistics for Windows, Version 26.0 (Released 2018; IBM Corp., Armonk, NY, USA). Continuous variables were summarised using appropriate measures of central tendency and dispersion, while categorical variables were expressed as frequencies and percentages. RDW was analysed as both a continuous variable and a categorical variable using a cut-off of 17.3%. The association between RDW and 30-day mortality was assessed using the chi-square test, while Spearman's rank correlation was used to evaluate the relationship between RDW and SOFA score. A p-value <0.05 was considered statistically significant. Ethical approval, written informed consent, and confidentiality were maintained throughout the study.

Results

A total of 144 patients were included in the analysis, of whom 111 (77.1%) survived and 33 (22.9%) did not. The mean age of the overall cohort was 51.5 ± 20.8 years (median, 53.0 years; IQR, 31.8-70.0), with no significant difference between survivors and non-survivors (51.3 ± 20.6 vs. 52.4 ± 21.9 years; p = 0.79). Males predominated in the overall cohort (63.2%) and accounted for a numerically higher proportion of non-survivors than survivors (75.8% vs. 59.5%), although this difference was not statistically significant (p = 0.09).

Patients presented at a mean of 2.3 ± 2.4 days after the onset of illness, with no significant difference between the groups (p = 0.41). Respiratory rate (26.4 ± 4.2/min; p = 0.41) and systolic blood pressure (88.5 ± 13.8 mmHg; p = 0.62) at presentation were also comparable between survivors and non-survivors. Altered mentation was present in 77.8% of patients overall and was numerically more frequent among survivors than non-survivors (81.1% vs. 66.7%; p = 0.08). The mean qSOFA score was 2.5 ± 0.5 for the entire cohort, with a trend towards a higher score among survivors (2.5 ± 0.5 vs. 2.3 ± 0.5; p = 0.08), although this difference was not statistically significant. The mean RDW at admission was 17.9 ± 2.4% for the overall cohort.

None of the baseline demographic, clinical, or severity variables differed significantly between survivors and non-survivors, indicating that the two groups were broadly comparable at presentation. These findings are presented in Table *1*.

Characteristic	Overall (N = 144)	Survivors (n = 111)	Non-survivors (n = 33)	p-value
Age (years)				0.79
Mean ± SD	51.5 ± 20.8	51.3 ± 20.6	52.4 ± 21.9	
Median (IQR)	53.0 (31.8, 70.0)	53.0 (31.5, 68.5)	53.0 (35.0, 73.0)	
Sex, n (%)				0.09
Male (1)	91 (63.2%)	66 (59.5%)	25 (75.8%)	
Female (0)	53 (36.8%)	45 (40.5%)	8 (24.2%)	
Day of illness at presentation, Mean ± SD	2.3 ± 2.4	2.4 ± 2.7	2.0 ± 0.7	0.41
Respiratory rate (/min), Mean ± SD	26.4 ± 4.2	26.2 ± 4.1	26.9 ± 4.6	0.41
Systolic BP (mmHg), Mean ± SD	88.5 ± 13.8	88.8 ± 14.5	87.5 ± 11.4	0.62
Altered Mentation, n (%)				0.08
Yes (1)	112 (77.8%)	90 (81.1%)	22 (66.7%)	
No (0)	32 (22.2%)	21 (18.9%)	11 (33.3%)	
qSOFA score, Mean ± SD	2.5 ± 0.5	2.5 ± 0.5	2.3 ± 0.5	0.08
RDW (%) at admission, Mean ± SD	17.9 ± 2.4			

TABLE 1: Baseline demographic and clinical characteristics of the study population.

The data are presented as mean ± SD or median (IQR) for continuous variables and as frequency (n) and percentage (%) for categorical variables. Comparisons between survivors (n = 111) and non-survivors (n = 33) were performed using the independent-samples Student's t-test for continuous variables and the chi-square test or Fisher's exact test, as appropriate, for categorical variables. A two-tailed p-value of < 0.05 was considered statistically significant.

BP, Blood Pressure; IQR, Interquartile Range; RDW, Red Cell Distribution Width; qSOFA, Quick Sequential Organ Failure Assessment; N, Number of Participants; SD, Standard Deviation

Among the 144 subjects, the mean admission SOFA score was 8.58 ± 2.70 (range, 2-14; median, 8), reflecting variability in the severity of organ dysfunction. Although the SOFA score incorporates respiratory, cardiovascular, hepatic, renal, neurological, and coagulation parameters, only the total score was analysed in relation to RDW, as a component-wise analysis was beyond the scope of this study. The total SOFA scores are summarised in Table *2*.

Statistic	Value
Number of participants (N)	144
Mean	8.58
Standard error of the mean	0.225
Median	8.00
Mode	6
Standard deviation	2.696
Range	12
Minimum	2
Maximum	14

TABLE 2: Descriptive statistics of total SOFA score at admission.

Table showing the descriptive statistics of the total SOFA score at admission among subjects with sepsis. The SOFA score was used to assess the severity of organ dysfunction at presentation.

SOFA, Sequential Organ Failure Assessment; N, Number of Participants

At the end of the 30-day follow-up period, 99 subjects (68.8%) were alive, while 45 subjects (31.3%) had died due to sepsis. This indicates an overall 30-day mortality rate of 31.3% in the study population. There were no non-sepsis-related deaths. The 30-day mortality outcomes are presented in Table *3*.

30-day outcome	Frequency (n)	Percentage (%)
Alive	99	68.8
Dead	45	31.3
Total	144	100.0

TABLE 3: Thirty-day outcomes among participants with sepsis.

Table showing the 30-day outcomes among subjects with sepsis, including the frequency and percentage of survivors and non-survivors during the follow-up period.

N, Number of Study Participants; Percentages are expressed as proportions of the total study population.

A statistically significant association was observed between RDW categories and 30-day mortality. Among subjects with RDW ≤17.3%, 12 of 64 (18.8%) died within 30 days, while 52 (81.3%) survived. Among subjects with RDW >17.3%, 33 of 80 (41.3%) died, while 47 (58.8%) survived. The Pearson chi-square test demonstrated a statistically significant association ($\chi^2 = 8.378$, df = 1, p = 0.004). The contingency data and corresponding test results are presented separately in Tables *4*-*5*.

RDW category	Alive, n (%)	Dead, n (%)	Total, n
≤17.3%	52 (81.3)	12 (18.8)	64
>17.3%	47 (58.8)	33 (41.3)	80
Total	99 (68.8)	45 (31.3)	144

TABLE 4: Association between admission RDW category and 30-day outcome.

Table showing the association between RDW category at admission and 30-day outcome among subjects with sepsis. Subjects with RDW >17.3% demonstrated significantly higher mortality compared to those with RDW ≤17.3%, indicating a significant relationship between elevated RDW and poor clinical outcome.

RDW, Red Cell Distribution Width; n, Number of Study Participants

Statistical test	Test statistic	df	p-value
Pearson chi-square	8.378	1	0.004
Continuity correction	7.364	1	0.007
Likelihood ratio	8.662	1	0.003
Fisher's exact test	Not applicable	-	0.004 (two-sided); 0.003 (one-sided)

TABLE 5: Tests of association between RDW category and 30-day outcome.

Table shows Pearson Chi-square test and Fisher's exact test were used to assess the association between RDW category and 30-day mortality.

df, Degrees of Freedom; RDW, Red Cell Distribution Width; p-value <0.05 considered statistically significant.

Admission RDW and total admission SOFA scores showed a moderate positive correlation (Spearman's rho = 0.474, $p < 0.001$; N = 144). Higher RDW values were associated with higher SOFA scores and greater severity of organ dysfunction, as shown in Table *6*.

Variable pair	Spearman's rho	p-value	N
Admission RDW (%) and total admission SOFA score	0.474	<0.001	144

TABLE 6: Spearman correlation between admission RDW and total SOFA score.

Table showing the correlation between RDW (%) at admission and total SOFA score at admission among subjects with sepsis. A moderate positive correlation was observed, indicating that higher RDW values were associated with greater severity of organ dysfunction. Spearman's rho was used to assess the correlation between RDW and SOFA score. The correlation is significant at the 0.01 level (two-tailed).

RDW, Red Cell Distribution Width; SOFA, Sequential Organ Failure Assessment; N, Number of Participants

In the multivariable logistic regression model, admission RDW was an independent predictor of mortality. Each 1% increase in RDW was associated with 33.6% higher odds of death ($\beta = 0.2895$, SE = 0.0853; adjusted OR (aOR) = 1.336, 95% CI: 1.130-1.579; $p = 0.0007$). Patients with an RDW above 17.3% had approximately three times higher odds of mortality than those with an RDW of 17.3% or below (aOR = 3.098, 95% CI: 1.426-6.731; $p = 0.0043$). The qSOFA score was not independently associated with mortality after adjustment (aOR = 0.545, 95% CI: 0.257-1.158; $p = 0.1144$). These findings are presented in Table *7*.

Predictor variable	β coefficient	SE	Wald z	p-value	aOR	95% CI
RDW (%) at admission	0.2895	0.0853	3.393	0.0007	1.336	1.130 - 1.579
RDW category (> 17.3% vs. ≤ 17.3%)	1.1307	0.3959	2.856	0.0043	3.098	1.426 - 6.731
qSOFA score	-0.6066	0.3842	-1.579	0.1144	0.545	0.257 - 1.158
Constant (Intercept)	-4.5730	1.7492	-2.614	0.0089	0.010	0.0003 - 0.318

TABLE 7: Multivariable logistic regression analysis of predictors for clinical outcomes.

A multivariable binary logistic regression analysis was performed to evaluate the predictive value of admission RDW and qSOFA scores for 30-day mortality (N = 144; 45 non-survivors and 99 survivors). The overall logistic regression model was statistically significant (χ^2 = 14.80, p = 0.0006), explaining 13.7% of the variance in 30-day mortality (Nagelkerke R^2). Admission RDW emerged as a significant independent predictor of 30-day mortality (aOR = 1.336, 95% CI: 1.130-1.579; p = 0.0007), indicating that each 1% increase in RDW was associated with a 33.6% increase in the odds of mortality. When analysed categorically, patients with RDW > 17.3% had more than threefold higher odds of 30-day mortality than those with RDW ≤ 17.3% (aOR = 3.098, 95% CI: 1.426-6.731; p = 0.0043). In contrast, the qSOFA score was not an independent predictor of 30-day mortality (aOR = 0.545, 95% CI: 0.257-1.158; p = 0.1144).

RDW, Red Cell Distribution Width; qSOFA, Quick Sequential Organ Failure Assessment; SE, Standard Error; aOR, Adjusted Odds Ratio; CI, Confidence Interval

Admission RDW showed modest discriminative ability in predicting mortality, with an area under the curve (AUC) of 0.679. The Youden index identified an optimal cut-off value of ≥16.9%, which provided high sensitivity (84.4%) but lower specificity (45.5%). The protocol-defined cut-off value of >17.3% yielded a sensitivity of 73.3% and a specificity of 52.5%. These findings are presented in Figure *1*.

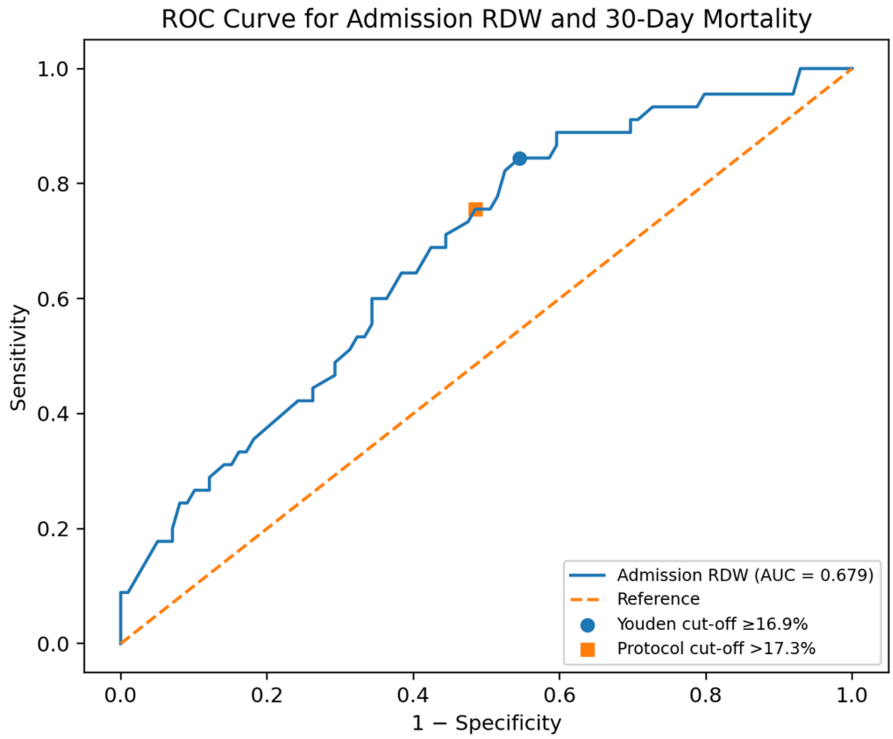


FIGURE 1: ROC curve for admission RDW in discriminating 30-day mortality. The AUC was calculated using continuous RDW; the Youden threshold was exploratory.

The AUC for admission RDW was 0.679 (95% CI 0.583-0.770), indicating modest discrimination. The threshold maximising the Youden index was ≥16.9%, with sensitivity 84.4% and specificity 45.5%. At the prespecified >17.3% threshold, sensitivity was 73.3%, specificity 52.5%, positive predictive value 41.2%, and negative predictive value 81.2%.

AUC, Area Under the Curve; ROC, Receiver Operating Characteristic; RDW, Red Cell Distribution Width; CI, Confidence Interval

Figure *1* shows the ROC curve for admission RDW in discriminating 30-day mortality. The AUC was calculated using continuous RDW values, whereas the Youden-derived threshold was considered exploratory.

Discussion

The present study evaluated the prognostic significance of RDW in patients with sepsis and its association with organ dysfunction severity, assessed using the SOFA score. Among the 144 subjects, the mean admission SOFA score was 8.58 ± 2.70, with a median of 8 (range: 2-14), reflecting considerable variability in the severity of organ dysfunction. The SOFA score evaluates respiratory, cardiovascular, hepatic, renal, neurological, and coagulation dysfunction and remains an established tool for assessing disease severity, clinical outcomes, and prognosis in sepsis [10,13]. In this study, only the total SOFA score was analysed in relation to RDW, as individual organ system components were beyond the scope of the investigation.

The overall 30-day mortality observed in the study was 31.3%, with 45 out of 144 subjects succumbing to sepsis during the follow-up period. This mortality rate is consistent with the substantial burden and high fatality associated with sepsis despite advances in critical care management, as noted by Lindström et al. [9]. The findings emphasise the need for simple and readily available biomarkers that can facilitate early risk stratification and prognostic assessment in septic patients.

A key observation of the present study was the statistically significant association between elevated RDW at admission and increased 30-day mortality. Patients with RDW >17.3% demonstrated a markedly higher mortality rate (41.3%) compared to those with RDW ≤17.3% (18.8%). The association remained statistically significant ($\chi^2 = 8.38$, $p = 0.004$), indicating that elevated RDW values at presentation are linked to poorer clinical outcomes. These findings support the growing body of evidence suggesting that RDW, traditionally used in the evaluation of anaemia, may also serve as an important prognostic marker in inflammatory and

critically ill states such as sepsis [10,14].

The association between elevated RDW and sepsis severity may be explained by systemic inflammation, oxidative stress, nutritional deficiencies, impaired erythropoiesis, and bone marrow dysfunction [9]. During sepsis, inflammatory cytokines disrupt normal erythrocyte maturation and membrane stability, resulting in increased variability in red blood cell size and immature RBCs in circulation [14]. These changes contribute to anisocytosis, which is reflected by elevated RDW. Consequently, higher RDW values may serve as an indirect indicator of systemic inflammation, physiological stress, and disease severity in patients with sepsis [15].

Another important finding of the study was the significant positive correlation between RDW and SOFA score at admission. Spearman's rank correlation analysis demonstrated a moderate positive correlation ($\rho = 0.474$, $p < 0.001$), indicating that subjects with higher RDW values generally had higher SOFA scores and consequently more severe organ dysfunction. Although the correlation was not perfect, its moderate strength suggests that RDW and SOFA score share a clinically meaningful relationship while still representing different aspects of disease severity and clinical outcome [12]. The positive direction of the correlation further indicates that worsening anisocytosis parallels increasing organ failure in septic patients [16].

The observed relationship between RDW and SOFA score reinforces the concept that RDW is not merely a haematological parameter but also a reflection of ongoing inflammatory and physiological stress. Since SOFA scoring requires multiple laboratory and clinical variables, RDW may offer additional practical utility as a simple, inexpensive, and routinely available biomarker that can aid in early prognostic evaluation, particularly in resource-limited settings [17]. Importantly, the findings of the present study demonstrate that even a single RDW measurement obtained at admission may help identify patients at greater risk of severe organ dysfunction and mortality.

Sepsis outcomes have been associated with dynamic changes in RDW, highlighting its potential prognostic value and further aiding in differentiating between more severe and less severe sepsis [18]. Krishna et al. reported that an increase in RDW within the first 72 hours of hospital admission was significantly associated with higher mortality in patients with sepsis [19]. Although their study focused on serial RDW measurements, the findings align with the present study, in which admission RDW values >17.3% were associated with significantly higher 30-day mortality and greater organ dysfunction. Both elevated admission RDW and rising RDW trends may reflect the underlying inflammation, oxidative stress, impaired erythropoiesis, and physiological disturbances associated with sepsis [20]. The consistency between studies suggests that both rising RDW trends during hospitalisation and elevated RDW at presentation are indicative of poorer clinical outcomes [20]. Importantly, the present findings support the potential utility of a single admission RDW measurement as a simple, inexpensive, and readily available adjunct for early risk stratification and mortality assessment in patients with sepsis.

Overall, this study highlights the prognostic significance of RDW in sepsis, demonstrating its association with higher SOFA scores and increased 30-day mortality. Elevated admission RDW was associated with greater organ dysfunction and poorer survival outcomes. As a simple, inexpensive, and routinely available parameter, RDW may serve as a useful adjunct for early risk stratification and support clinical decision-making in sepsis management.

This study is a single-centre observational study, hence limiting the generalisability of its findings. RDW was measured only at admission, precluding assessment of serial changes and long-term outcomes. Residual confounding and the absence of individual SOFA component analysis further limited the evaluation of RDW in relation to specific organ dysfunctions.

Conclusions

This study demonstrates that elevated admission RDW is significantly associated with increased 30-day mortality and greater organ dysfunction in patients with sepsis. The positive correlation between RDW and SOFA score suggests its potential to reflect the underlying inflammatory burden and disease severity. As a routinely available and cost-effective haematological parameter, RDW may serve as a useful adjunct to established severity scoring systems for early risk stratification and identification of high-risk patients. Although RDW should not be considered a standalone prognostic marker, its incorporation into routine sepsis assessment may support timely clinical decision-making. Further prospective, multicentric studies are warranted to validate these findings and establish the additional prognostic value of RDW alongside conventional clinical scoring systems.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Rajasekharan Chandrasekharan, Archa M. Ullas Kumar, Lindo Thomas, Shivani C. Bhagwat, Amith Narayan

Acquisition, analysis, or interpretation of data: Rajasekharan Chandrasekharan, Archa M. Ullas Kumar, Lindo Thomas, Shivani C. Bhagwat, Amith Narayan

Drafting of the manuscript: Rajasekharan Chandrasekharan, Archa M. Ullas Kumar, Lindo Thomas, Shivani C. Bhagwat, Amith Narayan

Critical review of the manuscript for important intellectual content: Rajasekharan Chandrasekharan, Archa M. Ullas Kumar, Lindo Thomas, Shivani C. Bhagwat, Amith Narayan

Supervision: Rajasekharan Chandrasekharan, Amith Narayan

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Azeezia Ethics Committee issued approval AEC/REV/2024/39. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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