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ORIGINAL ARTICLE

Prognostic Impact of Body Mass Index and Platelet to Lymphocyte Ratio in Patients with Diffuse Large B -Cell Lymphoma Primary Treated by R-CHOP

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ABSTRACT

Background: Diffuse large B-cell lymphoma (DLBCL), the most common form of non-Hodgkin lymphoma, often requires refined risk assessment beyond the International Prognostic Index (IPI). This study investigated the prognostic significance of body mass index (BMI) and platelet-to-lymphocyte ratio (PLR) in patients receiving R-CHOP, aiming to enhance outcome prediction and support more tailored therapeutic strategies.

Methods: This retrospective cohort included 85 patients newly diagnosed with DLBCL who received R-CHOP between 2017 and 2022. Clinical presentation, laboratory findings, and therapeutic details were reviewed. Associations between various prognostic variables and treatment outcomes, including disease-free survival (DFS) and overall survival (OS), were evaluated.

Results: Complete response (CR) was achieved in 74.1%, partial response in 2.4%, stable disease in 5.9 %, while progressive disease was encountered in 17.6%; and relapse occurred in 14.1% of patients who initially achieved CR. Median DFS was 25.5 months, and median OS was 31 months. At a cutoff of 126.7, PLR had a sensitivity of 88% and a specificity of 66.7% with a significant difference in predicting the response rate. PLR was significantly correlated with treatment response ($p < 0.001$), DFS ($p = 0.002$), and OS ($p = 0.004$). Patients with higher PLR had worse treatment and survival outcomes. The IPI was an independent predictor of response rate ($p = 0.006$), DFS ($p = 0.001$), and OS ($p = 0.003$). BMI showed non-significant correlation with response rate ($p = 0.27$), DFS ($p = 0.39$), or OS ($p = 0.41$).

Conclusion: Growing evidence highlights the prognostic relevance of pretreatment PLR in DLBCL. Its simplicity and low cost make it a valuable adjunct to established prognostic models for identifying high-risk patients who might benefit from more aggressive treatment. In contrast, the role of obesity assessed by body mass index in predicting outcomes remains unclear, emphasizing the need for more precise obesity assessment tools in the era of chemoimmunotherapy.

Keywords: Body Mass Index; Platelet to Lymphocyte Ratio; Diffuse Large B-Cell Lymphoma; R-CHOP

INTRODUCTION

Diffuse large B-cell lymphoma (DLBCL) constitutes the most significant proportion of non-Hodgkin lymphoma (NHL) cases, representing roughly 35–40% of diagnoses, and ranks as one of the most widespread hematologic cancers

worldwide [1]. The established first-line regimen for this condition is R-CHOP immunochemotherapy (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone), which delivers cure rates varying between 50% and nearly 100%, contingent upon the patient's International Prognostic Index (IPI) score [2]. Despite that, up to 40% of patients experience relapse or develop refractory disease [3].

The IPI risk stratification incorporates serum lactate dehydrogenase (LDH), age, performance status, stage, and extranodal involvement [3]. High IPI scores, bulky disease, activated B-cell subtype, and genetic alterations such as MYC with BCL2 and/or BCL6 rearrangements are associated with poor prognosis [4]. However, the predictive value of IPI alone is limited in the immunochemotherapy era, prompting interest in additional biomarkers.

Inflammation-related hematologic indices, such as the platelet-to-lymphocyte ratio (PLR), have been investigated as accessible prognostic tools in several malignancies, including DLBCL [5]. While some studies support its prognostic role, results remain inconsistent [5]. Obesity, measured by body mass index (BMI), has also been linked to cancer risk and progression through hormonal, metabolic, and immune-mediated mechanisms [6,7]. Although some studies suggest an association between higher BMI and increased risk of DLBCL, evidence remains conflicting [8].

While the International Prognostic Index remains the cornerstone of risk assessment in diffuse large B-cell lymphoma, its predictive accuracy in the rituximab era is limited. Inflammatory markers such as the platelet-to-lymphocyte ratio and obesity indicators like body mass index are inexpensive measures with potential prognostic relevance. Yet, existing studies show inconsistent findings due to population heterogeneity, methodologies, and cutoff values. Moreover, data assessing PLR and BMI in R-CHOP–treated cohorts, particularly from Middle Eastern populations, are scarce, leaving their combined prognostic utility unclear. So, the present study seeks to evaluate the prognostic significance of body mass index and platelet-to-lymphocyte ratio in patients with DLBCL undergoing R-CHOP therapy to enhance outcome prediction and guide more individualized treatment strategies.

METHODS

This retrospective observational cohort study was performed at the Medical Oncology Department of Zagazig University Hospitals. Medical records of patients diagnosed with DLBCL who received R-CHOP as their primary treatment were retrospectively reviewed. The study encompassed cases managed between January 2017 and December 2022, yielding 85 patients who met the eligibility criteria.

Upon receiving Institutional Review Board approval (ZU-IRB# 11/8 - Jan 2024), each participant provided written consent to participate before enrollment. All procedures were carried out in complete alignment with the ethical principles of the Declaration of Helsinki and in compliance with the World Medical Association's standards for human research.

Inclusion criteria comprised patients with pathologically confirmed DLBCL according to the WHO classification, demonstrating CD20 positivity on immunohistochemistry [9]. Eligible patients were those who had received R-CHOP as first-line therapy, were aged

18 years or older, and demonstrated adequate hepatic function, defined as a total bilirubin level below 2 mg/dL and AST/ALT values less than 2.5 times the upper limit of normal. Disease stage was determined according to the Ann Arbor classification, while functional status was assessed using the Eastern Cooperative Oncology Group (ECOG) performance scale [10].

Exclusion criteria included incomplete clinical or pathological data, presence of relapsed or refractory disease at initial diagnosis, and significant cardiac, renal, or hepatic impairment precluding administration of chemotherapy. Patients who had primary central nervous system lymphoma, composite lymphoma, or HIV-associated DLBCL were excluded, as were those with active autoimmune disorders. Pregnancy or lactation at the time of diagnosis also constituted exclusion criteria.

Data Collection and Clinical Assessment

Data were extracted from medical files, including demographics, comorbidities, presenting symptoms, physical examination findings, and relevant oncologic history.

Baseline evaluation included detailed history (personal data, complaint analysis, past medical/surgical history, drug allergies), physical examination, and assessment of special habits of medical importance.

All data were retrieved from patients' medical records. Laboratory parameters documented in the files included complete blood count (CBC), platelet count, and the PLR, calculated as platelet count divided by lymphocyte count [11]. Recorded biochemical results comprised serum lactate dehydrogenase (LDH), liver and renal function tests, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), prothrombin time (PT), partial thromboplastin time (PTT), and international normalized ratio (INR). Viral screening results, as documented in the files, included hepatitis B surface antigen, hepatitis B core antibody, hepatitis C virus antibody, and human immunodeficiency virus (HIV) antibody.

BMI was determined using the standard formula of weight in kilograms divided by height in meters squared, and patients were assigned to one of four categories: underweight (less than 18.5), normal (18.5–24.9), overweight (25–29.9), or obese (30 or higher) [12].

Radiological evaluation data were obtained from patients' medical records. The documented staging evaluation included contrast-enhanced computed tomography (CT) of the neck, chest, abdomen, and pelvis, with positron emission tomography–computed tomography (PET-CT) performed when available. Baseline echocardiography, conducted before the initiation of anthracycline-containing immunochemotherapy, was also recorded. Dose modifications, when indicated, were instituted in accordance with documented toxicity grades and organ function evaluations.

Follow-up and response assessment data were extracted from patients' medical records. Follow-up assessments, as documented, were scheduled every 3–6 months during the first two years after completion of treatment, and annually thereafter, or more frequently if clinically indicated. At each visit, recorded evaluations included patient history, physical examination findings, and laboratory investigations. Contrast-enhanced CT scans of the chest, abdomen, and pelvis were performed at intervals not exceeding every 6 months during the first 2 years, per NCCN

guidelines. Treatment response and disease progression were documented in the records based on the Lugano classification for lymphoma response criteria.

The primary endpoint of this study was disease-free survival (DFS), defined as the interval from documentation of complete remission to the earliest evidence of relapse or progression, as assessed by clinical evaluation, laboratory investigations, or radiological imaging. The secondary endpoint was overall survival (OS), measured from the date of diagnosis to death from any cause or last follow-up. In addition, the main objective of the study was to examine the correlation of baseline body mass index (BMI) and platelet-to-lymphocyte ratio (PLR) with treatment response, DFS, and OS, to determine their prognostic value in patients with DLBCL receiving R-CHOP.

Statistical Analysis

Categorical data were summarized as frequencies and percentages, and continuous data as mean ± SD or median (IQR). Group comparisons used t-test or Mann–Whitney U test, with Chi-square for categorical variables. Spearman's correlation assessed non-parametric relationships. Kaplan analyzed survival–Meier with log-rank testing, and prognostic factors by Cox regression. Significance was set at $p \leq 0.05$ using SPSS v22.

RESULTS

The cohort comprised 85 patients (with a mean age of 52.7 ± 11.9 years, 62.4% female), mostly PS 0–1 (84.7%). Overweight (34.1%) and obese (40.0%) patients predominated, with only 3.5% underweight. Comorbidities were infrequent (78.8% none), mainly hypertension (21.2%) and diabetes (16.5%). Median PLR was 126.3 (range 20–630). LDH was elevated in 54.1% (35.3% at 1.5 × ULN, 18.8% > 2 × ULN). Advanced stage (III–IV) occurred in 61.2%, with bone marrow (12.9%) and other extranodal sites, gastric (8.2%), soft tissue/musculoskeletal (9.4%), and miscellaneous (10.6%) involvement. Bulky disease was rare (3.5%) **(**Table 1).

Half the patients presented with B-symptoms(50.6%) and elevated ESR (49.4%). Most had intermediate prognostic risk by IPI (54.1% low-intermediate, 28.2% high-intermediate), with only 16.5% classified as low risk. All patients received R-CHOP, and 9.4% received consolidative radiotherapy. Complete remission was achieved in 74.1%, while 2.4% of patients showed partial response, 5.9% had stable disease, and 17.6% suffered progressive disease; recurrence occurred in 14.1% of patients in CR. Median DFS and OS were 25.5 and 31 months, respectively. Mortality reached 29.4% during follow-up (Table 2).

Higher IPI scores correlated with significantly poorer outcomes. Complete remission was highest in the low-intermediate group (87%), compared with 64.3% in low, 58.3% in high-intermediate, and 0% in high IPI ($p \leq 0.001$). Progressive disease rose from 0% in low to 37.5% in high-intermediate and 100% in high IPI. Median DFS decreased from 29 months (low-intermediate) to 14.5 months (high-intermediate) and 0 months (high IPI) ($p = 0.02$), while OS dropped from 42 months (low) to 2 months (high IPI) ($p = 0.03$) (Table 3).

BMI showed no significant association with DFS, OS, or response rates. Median DFS ranged from 18 months in overweight to 28 months in obese patients, while OS was 30–36 months across categories ($p > 0.05$). Complete remission rates remained high across all BMI groups (69.0–100%, $p = 0.83$). Progressive disease occurred most frequently in overweight (20.7%) and obese (20.6%) patients, without statistical significance (Table 4).

High PLR (>126) was significantly associated with worse outcomes. Median DFS and OS were shorter in the high PLR group (34.5 and 34 months) than in the low PLR group (47 and 40 months) ($p = 0.01$

and 0.04, respectively). Complete remission was achieved in 92.3% of low PLR patients versus 58.7% of high PLR (p = 0.003), while progressive disease occurred in 30.4% of high PLR versus 2.6% of low PLR. PLR correlated negatively with DFS (r = –0.234, p = 0.02) and OS (r = –0.281, p = 0.007), confirming its prognostic significance (Table 5, Figure 1).

At a cutoff of 126.7, PLR had a sensitivity of 88% and a specificity of 66.7%, with a statistically significant difference in predicting response rate (Figure 2).

Table 1. Demographic, Clinical, Laboratory, and Disease Characteristics of the Studied Group (N=85)

Variable	Category / Statistic	Studied Group *(N=85)*
Age (years)	Mean ± SD	52.74 ± 11.9
Sex	Male	32 (37.6%)
	Female	53 (62.4%)
Performance Status (PS)	0	55 (64.7%)
	1	17 (20.0%)
	2	13 (15.3%)
Body Mass Index (BMI)	Low	3 (3.5%)
	Average	19 (22.4%)
	Overweight	29 (34.1%)
	Obese	34 (40.0%)
Comorbidities	None	67 (78.8%)
	Diabetes Mellitus (DM)	14 (16.5%)
	Hypertension (HTN)	18 (21.2%)
Platelet–Lymphocyte Ratio	Median (Range)	126.27 (20–630)
HBV	Core Ab Positive	4 (4.7%)
	Negative PCR	4 (4.7%)
HCV	Ab Positive	8 (9.4%)
	Negative PCR	8 (9.4%)
LDH	Normal	39 (45.9%)
	1.5 × ULN	30 (35.3%)
	> 2 × ULN	16 (18.8%)
Stage of Disease	I	8 (9.4%)
	IE	6 (7.1%)
	II	18 (21.2%)
	IIE	1 (1.2%)
	III	17 (20.0%)
	IV	35 (41.2%)
Extra-nodal Sites	Bone Marrow (BM)	11 (12.9%)
	Gastric	7 (8.2%)
	Soft tissue / muscle / bone	8 (9.4%)
	Other	9 (10.6%)
Bulky Sites	Yes	3 (3.5%)
	No	82 (96.5%)

SD: Standard deviation; PS: Performance status; BMI: Body mass index; DM: Diabetes mellitus; HTN: Hypertension; HBV: Hepatitis B virus; HCV: Hepatitis C virus; Ab: Antibody; PCR: Polymerase chain reaction; LDH: Lactate dehydrogenase; ULN: Upper limit of normal; BM: Bone marrow.

Table 2: Prognostic characteristics, treatment, response, survival outcomes, and mortality in the studied group (N = 85)

Parameter	Category	Studied Group N (%) / Median
Prognostic characteristics		
B-symptom	**Present**	**43 (50.6%)**
	Absent	**42 (49.4%)**
ESR	**Normal**	**43 (50.6%)**
	High	**42 (49.4%)**
IPI	**Low**	**14 (16.5%)**
	Low intermediate	**46 (54.1%)**
	High intermediate	**24 (28.2%)**
	High	**1 (1.2%)**
Treatment		
R-CHOP		**85 (100%)**
RTH		**8 (9.4%)**
Response		
CR		**63 (74.1%)**
PR		**2 (2.4%)**
SD		**5 (5.9%)**
PD		**15 (17.6%)**
Recurrence		**12 (14.1%)**
Survival outcomes		
DFS (months)	**Median**	**25.5**
OS (months)	**Median**	**31**
Mortality		
Died		**25 (29.4%)**
Alive		**60 (70.6%)**

ESR: Erythrocyte Sedimentation Rate; IPI: International Prognostic Index; R-CHOP: Rituximab, Cyclophosphamide, Hydroxydaunorubicin, Oncovin, Prednisone; RTH: Radiotherapy; CR: Complete Response; PR: Partial Response; SD: Stable Disease; PD: Progressive Disease; DFS: Disease-Free Survival; OS: Overall Survival.

Table 3: Relation between IPI and outcome parameters in studied group (N = 85)

	IPI				**P value**
	Low N=14	**Low intermediate N=46**	**High intermediate N=24**	**High N=1**	
CR	**9 (64.3%)**	**40 (87%)**	**14 (58.3%)**	**0(0%)**	**≤0.001**
PR	**2 (14.3%)**	**0 (0%)**	**0 (0%)**	**0 (0%)**	
SD	**3 (21.4%)**	**1 (2.2%)**	**1 (4.2%)**	**0 (0%)**	
PD	**0 (0%)**	**5 (10.9%)**	**9 (37.5%)**	**1(100%)**	
DFS Median (month)	**19**	**29**	**14.5**	**0**	**0.02**
OS Median (month)	**42**	**36**	**25.5**	**2**	**0.03**

CR: complete response PR: partial response SD: Stable Disease PD: Progressive Disease

Table 4: Relation between Body Mass Index (BMI) and outcome parameters in the studied group (N = 85)

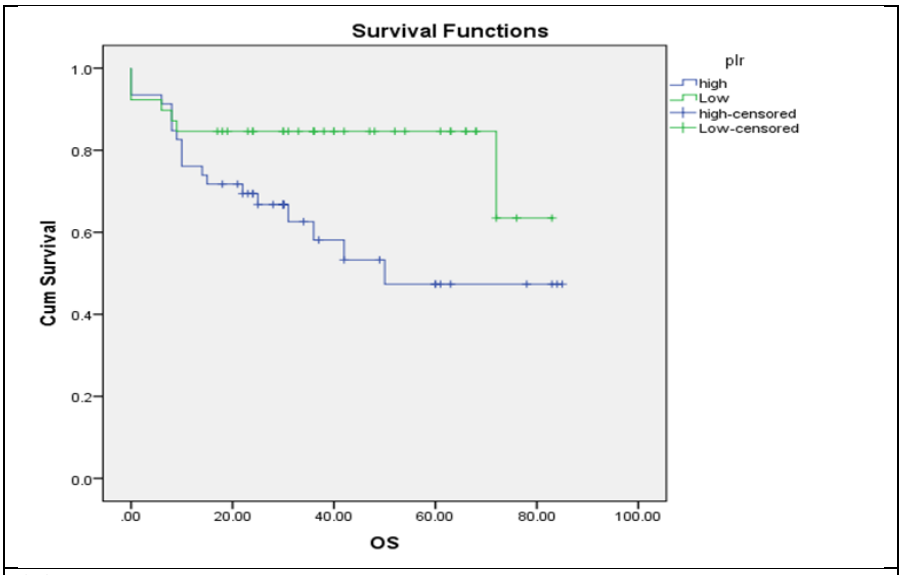
Parameter	BMI Category	Low	Average	Overweight	Obese	P-value
DFS (months)	Median	27	27	18	28	0.13
OS (months)	Median	30	30	30	36	0.48
CR	N (%)	3 (100%)	15 (78.9%)	20 (69.0%)	25 (73.5%)	0.83
PR	N (%)	0 (0.0%)	1 (5.3%)	0 (0.0%)	1 (2.9%)	
SD	N (%)	0 (0.0%)	1 (5.3%)	3 (10.3%)	1 (2.9%)	
PD	N (%)	0 (0.0%)	2 (10.5%)	6 (20.7%)	7 (20.6%)	

BMI: Body Mass Index; DFS: Disease-Free Survival; OS: Overall Survival; CR: Complete Response; PR: Partial Response; SD: Stable Disease; PD: Progressive Disease.

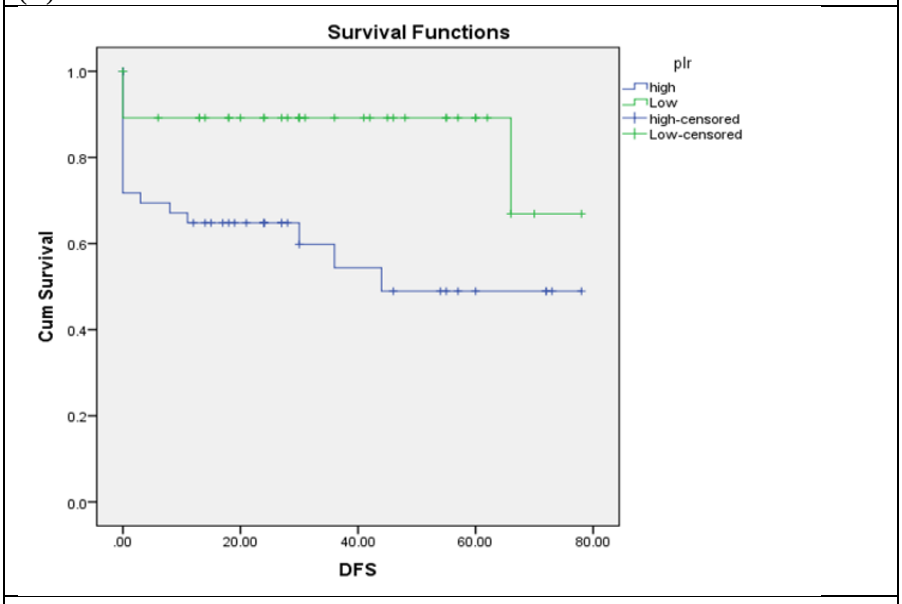
Table 5: Relation between Platelet-to-Lymphocyte Ratio (PLR) and outcome parameters in the Studied Group, with Correlation Analysis

Parameter	PLR Low (<126)	PLR High (>126)	P value
Median DFS (months)	47	34.5	0.01
Median OS (months)	40	34	0.04
CR (Complete Response)	36 (92.3%)	27 (58.7%)	0.003
PR (Partial Response)	1 (2.6%)	1 (2.2%)	-
SD (Stable Disease)	1 (2.6%)	4 (8.7%)	-
PD (Progressive Disease)	1 (2.6%)	14 (30.4%)	-
Recurrence	8 (20.5%)	4 (8.7%)	0.11
Correlation between PLR, Survival			
Outcome	r	P value	
DFS	-0.234	0.02	
OS	-0.281	0.007	

PLR: Platelet-to-Lymphocyte Ratio; DFS: Disease-Free Survival; OS: Overall Survival; CR: Complete Response; PR: Partial Response; SD: Stable Disease; PD: Progressive Disease. Statistical significance assessed by appropriate correlation tests (r = Pearson's correlation coefficient). P value <0.05 considered statistically significant



(A)



(B)

Figure 1: (A): ROC curve for (A): Overall survival (OS) in relation to PLR, (B): Relapse-free survival (PFS) in relation to PLR.

PLR: Platelet-to-Lymphocyte; DFS: Disease-Free Survival; OS: Overall Survival; P value <0.05 considered statistically significant

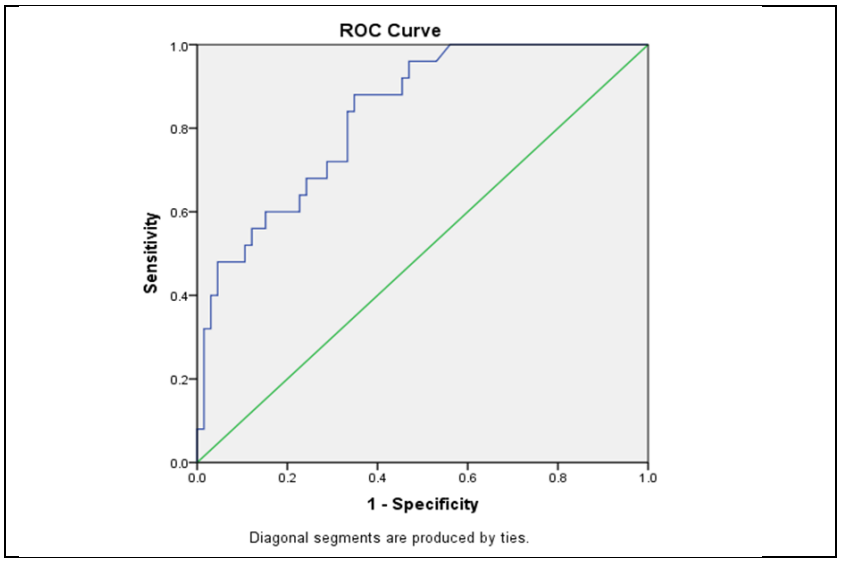


Figure 2: (A): ROC curve for PLR to predict response rate
PLR: Platelet-to-Lymphocyte

DISCUSSION

The PLR has been identified as a potential prognostic biomarker in several malignancies, including ovarian, esophageal, head and neck squamous cell carcinomas, and DLBCL. While multiple retrospective studies have suggested its predictive value in DLBCL, the results have been inconsistent [5]. The IPI remains the most widely applied prognostic model for newly diagnosed DLBCL, with modified versions proposed, although few have undergone external validation in diverse populations [13]. Standard frontline therapy with R-CHOP achieves high cure rates; however, about thirty to forty percent of patients experience relapses or develop refractory disease, leading to unfavorable outcomes [14].

The mean patient age in the current study was 52.7 ± 11.9 years, with a female predominance (62.4%). Most patients (64.7%) presented with an ECOG performance status (PS) of 0, while 20% and 15.3% had PS 1 and PS 2, respectively. Regarding BMI distribution, 3.5% were underweight, 22.4% had normal BMI, one-third were overweight, and 40% were obese. Comparable demographic and performance status patterns were reported by Al-Amodi et al. [15], who studied 100 Egyptian DLBCL patients treated with R-CHOP, noting a mean age of 54 years, with over half having PS 0. Conversely, Iltar et al. [16], investigating BMI and survival in R-CHOP–treated DLBCL, observed a higher mean age of 62.4 years in their cohort.

In the current study, most patients (78.8%) had no significant comorbidities; diabetes mellitus (DM) and hypertension (HTN) were present in 16.5% and 21.2% of cases, respectively. Akl et al. [17], studying mean platelet volume and red cell distribution width as prognostic markers in DLBCL, reported a similar proportion of patients without comorbidities (54.4%), with DM in 21.4% and HTN in 35.7%.

The median PLR in the current study was 126.3 (range 20–630). Viral serology revealed four patients with positive hepatitis B core antibody and negative HBV DNA, and 8 with positive hepatitis C antibody and negative HCV PCR. LDH was within normal limits in

45.9%, mildly elevated in 35.3%, and > twice the upper limit of normal in 18.8% of patients. Similar hepatitis seroprevalence patterns were documented by Waley et al. [18] in an Egyptian DLBCL cohort, where HBV DNA was undetectable in all cases with positive HBV markers, and HCV antibody positivity reached 26.2%.

In the current study, eight patients (9.4%) had stage I disease, six (7.1%) had stage IE, 18 (21.2%) had stage II, one (1.2%) had stage IIE, 17 (20%) had stage III, and 35 (41.2%) had stage IV. Extranodal involvement was most frequently in the bone marrow (11 patients) and soft tissue, musculoskeletal tissues (8 patients), followed by the stomach (7 patients) and other miscellaneous sites (7 patients). Bulky disease was present in 3 patients.

Comparable patterns were observed by Waley et al. [18] in an Egyptian cohort, where 21.4% had extranodal disease, with muscle (8.3%) and stomach (4.8%) being the most common sites. Their cohort, however, had a higher proportion of stage III disease (44%) and a greater frequency of bulky sites (21.4%).

Regarding additional prognostic features in the current study, 43 patients (50.6%) had B-symptoms, and 42 patients (49.4%) had elevated ESR. IPI distribution showed that 16.5% had low risk, 54.1% had low-intermediate risk, 28.2% had high-intermediate risk, and 1.2% had high risk. These findings are in line with Ma'koseh et al. [19], who studied outcomes of DA-EPOCH-R versus R-CHOP-21 in mediastinal large B-cell lymphoma; they reported B-symptoms in 41.4%, advanced stage (III–IV) disease in 33.1%, elevated ESR in one-third of patients, and an IPI >1 in 32.1%.

All patients in the current study received R-CHOP, with radiotherapy administered in 9.4% of cases. CR was achieved in 74.1%, PR in 2.4%, SD in 5.9 %, and PD in 17.6%. Disease recurrence occurred in 14.1% of patients who initially achieved CR. Hanbal et al. [20], investigating the MYD88 L265P mutation in Egyptian DLBCL patients, similarly reported high CR rates, with PR in 7%, SD in 8%, PD in 8%, and recurrence in 4% of CR cases. Parkhi et al. [21] also observed comparable CR rates in their study, with PR in 4.5%, SD in 63.6%, and PD in 4.5% after a median follow-up of 10 months.

Regarding survival outcomes, the current study showed a median DFS of 25.5 months and a median OS of 31 months. By the end of follow-up, 25 patients (29.4%) had died, while 60 (70.6%) were alive. These findings align with Al-Amodi and coworkers [15], who reported a 3-year PFS of 34.5%, a mean PFS of 24.27 months, and a median OS of 31.5 months in 60 Egyptian patients with DLBCL.

The current study identified the IPI as an independent predictor of response rate, DFS, and OS. This observation aligns with the study led by Parkhi and colleagues [21], who confirmed the prognostic value of IPI in predicting treatment response, DFS, and OS in DLBCL patients.

The current study also assessed the predictive value of BMI in patients receiving R-CHOP, revealing no significant association with remission rates. This aligns with Masar et al. [22], who evaluated 726 consecutive DLBCL patients and found no statistically significant correlation between BMI and treatment response.

Similarly, the current study observed no significant correlation between BMI and

either DFS or OS. This lack of association may be explained by the influence of other prognostic factors for refractory or relapsed DLBCL that were not assessed in this analysis, such as immunoblastic histology, molecular markers (e.g., *MYC*, *BCL2*), stromal signatures, and gene expression profile subtypes. Sehn et al. [23], in a study of 1,418 untreated DLBCL patients comparing G-CHOP and R-CHOP, likewise reported no significant correlation between OS, DFS, and BMI.

In contrast, Wang et al. [24], in an analysis of 8,753 DLBCL patients, reported better OS in overweight individuals compared to those with normal BMI, poorer OS in underweight patients, and no significant difference in obese patients. PFS was similar in obese and overweight groups but shorter in underweight patients.

On the other hand, the current study found that a higher platelet-to-lymphocyte ratio (PLR) was associated with poorer response rates and inferior survival outcomes. Similarly, Li et al. [25] evaluated multiple immune-inflammatory indicators in DLBCL patients treated with chemoimmunotherapy and reported that a PLR >195.89 correlated with lower response rates and reduced survival. The proposed explanation is that elevated platelet counts facilitate tumor invasion and metastasis, whereas reduced lymphocyte counts impair immune surveillance, allowing tumor proliferation to progress unchecked.

In contrast, Prisa et al. [26] conducted a retrospective analysis of 103 DLBCL patients treated with R-CHOP or R-CHOP–like regimens. They found no prognostic significance for PLR or the Glasgow Prognostic Score (GPS), while a higher neutrophil-to-lymphocyte ratio (NLR) was linked to poorer prognosis. Differences between the current study and that of Prisa et al. [26] may be attributed to variations in sample size, population demographics, geographic and ethnic backgrounds, and discrepancies in PLR cutoff values.

This study benefits from a homogenous cohort of newly diagnosed DLBCL patients uniformly managed with the standard R-CHOP regimen, limiting variability and allowing a more precise evaluation of prognostic factors. Assessing easily obtainable, low-cost markers such as PLR and BMI enhances their practical applicability, enabling integration into routine clinical workflows without additional resources. Including patients from a Middle Eastern population adds valuable epidemiologic insight into an underrepresented region, broadening the relevance of the findings. Moreover, the use of standardized diagnostic, staging, and response criteria, coupled with detailed survival analysis, reinforces the validity and reliability of the results.

This study is subject to several limitations. It was restricted to a single-center setting, and the modest sample size and variability in patient characteristics may have limited the statistical power to detect meaningful associations between OS, DFS, CR rates, and prognostic indicators such as BMI, PLR, and standard clinical indices. Moreover, BMI and PLR are nonspecific parameters in the context of DLBCL, as underlying inflammatory or nutritional conditions may influence them. In addition, this analysis did not examine important biological prognostic determinants, including BCL2, MYC, Ki-67, and gene expression profile subtypes.

Conclusion

An increasing body of evidence supports the prognostic value of pretreatment platelet-to-lymphocyte ratio in patients with diffuse large B-cell lymphoma. As a simple, cost-effective, and readily obtainable marker, PLR may provide additional prognostic insights beyond established factors, potentially aiding in identifying high-risk patients who may benefit from intensified therapeutic strategies.

Conversely, the prognostic and predictive implications of obesity as reflected by body mass index remain inadequately defined, underscoring the need for more accurate measures of obesity in the era of chemoimmunotherapy. Further well-designed studies across diverse populations and clinical contexts are warranted to validate and refine these findings.

Conflict of Interest & Funding Statement: This work was completed independently, with no external funding, and the authors report no competing interests.

Data Availability: The corresponding author may be contacted for access to the underlying data that substantiate this study's results. The author will consider providing them in accordance with institutional policies and applicable ethical guidelines.

Author contribution: H.F.T. and L.M.M.K. conceived the study design and supervised the research process. A.B.W. participated in data acquisition and interpretation. A.A.A. managed patient recruitment and follow-up and served as the corresponding author. All authors revised, reviewed, and approved the final version of this manuscript.

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