

Prognostic Impact of Pre-Treatment CRP/Albumin Ratio in Patients with Advanced-Stage Epithelial Ovarian Cancer

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Background: Systemic inflammation has emerged as a key determinant of prognosis in epithelial ovarian cancer (EOC). The pre-treatment C-reactive protein/albumin (CRP/Alb) ratio integrates host inflammatory and nutritional status, but its prognostic role in advanced-stage EOC remains incompletely defined.

Methods: We retrospectively analyzed 256 patients with FIGO stage III–IV high-grade serous ovarian cancer treated at a tertiary oncology center between 2010 and 2024. All patients underwent primary or interval cytoreductive surgery followed by standard platinum-based chemotherapy. Pre-treatment CRP and albumin values obtained within 14 days before therapy were used to calculate the CRP/Alb ratio. Patients were stratified according to the predefined median cut-off (2.32). Overall survival (OS) was the primary endpoint, and progression-free survival (PFS) was the secondary endpoint. Cox regression models were applied for univariate and multivariate analyses.

Results: Median follow-up was 81.4 months. The median OS for the entire cohort was 58.1 months. Patients with a CRP/Alb ratio <2.32 had significantly longer OS (74.6 vs 45.6 months; $p = 0.003$) and PFS (24.8 vs 17.1 months; $p = 0.026$) compared to those with higher ratios. In multivariate analysis, a CRP/Alb ratio ≥ 2.32 remained an independent predictor of worse OS (HR = 1.88; 95% CI: 1.12–3.18; $p = 0.018$), along with age ≥ 65 years (HR = 2.34; $p < 0.001$) and ECOG performance status 2–3 (HR = 1.60; $p = 0.006$). Individual CRP or albumin levels did not retain prognostic significance.

Conclusion: The pre-treatment CRP/Alb ratio is a simple, accessible, and independent prognostic biomarker in advanced-stage EOC. Its integration into routine risk assessment may enhance individualized prognostication and help identify high-risk patients who could benefit from closer monitoring and tailored supportive care. Prospective multicenter validation is warranted.

Keywords: ovarian cancer, CRP/albumin ratio, systemic inflammation, prognosis, survival

Introduction

Epithelial ovarian cancer (EOC) has the highest mortality amongst gynecologic malignancies.¹ Epithelial ovarian cancers are broadly classified into two major categories: Type I tumors, which are relatively indolent and genetically stable, and Type II tumors, which are biologically aggressive and account for the majority of cases. High-grade serous carcinoma—the most common subtype, representing approximately 75% of EOCs—belongs to the Type II category and is typically associated with TP53 and BRCA mutations.² Germline BRCA1/2 mutations represent the strongest known hereditary risk factors for epithelial ovarian cancer, present in 6–15% of patients. Interestingly, BRCA1/2-mutated cases tend to show higher sensitivity to platinum-based chemotherapy and improved survival compared with non-carriers.³ While surgical debulking and cytotoxic therapy remain the cornerstone of treatment, long-term survival remains poor.⁴ This clinical challenge highlights the need for prognostic markers that are reliable, accessible, and biologically meaningful to guide treatment decisions, refine risk stratification, and identify patients who may benefit from personalized therapy.⁵

In ovarian cancer, two major domains of prognostic assessment have recently gained attention: host-related inflammation and intrinsic tumor chemosensitivity.^{6–9} Systemic inflammation, modulated by tumor biology and the host

immune response, plays a central role in tumor progression, angiogenesis, immune escape, and resistance to therapy.¹⁰ In this context, inflammation-based markers such as the C-reactive protein to albumin ratio and the modified Glasgow Prognostic Score (mGPS) have emerged as clinically relevant prognostic tools.^{8,11} These scores take both inflammatory and nutritional status that are derived from routine laboratory tests, and are demonstrated as independent prognostic value across multiple solid tumors.^{8,12–14} A previous retrospective cohort by Liu et al showed that a higher preoperative CRP/albumin ratio was independently associated with worse overall survival in ovarian cancer patients.¹⁵ Similarly, Komura et al reported that elevated pretreatment CRP/Alb predicted shorter disease-specific survival across FIGO stages III–IV.¹⁶ Our study builds upon these findings by including a larger cohort, applying a predefined median-based cut-off, performing additional ROC analysis as a sensitivity check, and adjusting for key clinical covariates such as age and performance status in multivariate models.

Serum CA-125 is the most widely used biomarker in epithelial ovarian cancer for monitoring treatment response and disease progression.¹⁷ Although not specific to ovarian cancer, its levels generally correlate with tumor burden and chemotherapy response.¹⁷ Currently, CA-125 and HE4 are the only approved biomarkers for epithelial ovarian cancer; however, their utility for early detection remains limited. To address this limitation, multivariate index assays such as the Risk of Malignancy Algorithm (ROMA), which combines menopausal status with CA-125 and HE4 concentrations, have been developed to estimate the likelihood of malignancy in women with adnexal masses.¹⁸ MicroRNAs also hold promise as predictive biomarkers in epithelial ovarian cancer, but further standardization of sampling and detection methods is required before clinical implementation. Building upon this dynamic behavior, kinetic models such as the KELIM score quantify the early decline of CA-125 during the initial cycles of chemotherapy.¹⁹ The KELIM score has been validated as a surrogate marker of tumor chemosensitivity and is particularly useful in predicting outcomes in patients with platinum-resistant or refractory disease.^{20–22} While CA-125-based models primarily reflect tumor-intrinsic kinetics, inflammation-based markers may complement them by highlighting systemic factors that influence cancer progression and treatment response. Beyond predicting chemosensitivity, recent evidence suggests that the KELIM score may also predict the likelihood of achieving complete cytoreduction²³ and could even serve as an alternative to homologous recombination deficiency (HRD) testing in advanced ovarian cancer.²⁴

In advanced-stage ovarian cancer, systemic inflammation is increasingly recognized as a central driver of disease progression, therapeutic resistance, and clinical decline. Tumor- and host-derived inflammatory responses foster an immunosuppressive milieu that promotes continued tumor growth, angiogenesis, and metastatic spread while enabling cancer cells to evade immune surveillance.²⁵ This chronic inflammatory state—characterized by elevated cytokines such as interleukin-6 and tumor necrosis factor- α and activation of NF- κ B/STAT3 signaling—induces cancer cell survival mechanisms that blunt chemotherapy efficacy.^{10,26}

A growing body of evidence supports the role of systemic inflammatory markers as accessible and clinically meaningful tools in ovarian cancer prognostication. Biomarkers such as the CRP/albumin ratio, neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), and systemic immune-inflammation index (SII) integrate inflammatory and immune status into quantifiable risk estimates.^{27–29} More recently, the mean platelet volume to lymphocyte ratio (MPVLR) has also been explored as a surrogate for platelet-mediated inflammatory activity.^{30,31} These parameters can be derived from routine laboratory tests and have shown prognostic relevance across several tumor types.^{32,33} In ovarian cancer, their utility lies in their ability to reflect biologic processes that are not captured by conventional staging or imaging, offering complementary prognostic information that may enhance individualized risk stratification.³⁴

The appeal of these markers lies in their simplicity, reproducibility, and cost-effectiveness.^{34,35} They can be calculated from standard laboratory values, require no specialized technology, and are widely available in diverse clinical settings.²⁷ Their ability to provide timely insight into the patient's inflammatory and immune profile makes them particularly valuable when clinical deterioration occurs without corresponding radiologic progression.³⁶ Moreover, these markers can be monitored longitudinally, enabling dynamic assessment of disease trajectory and treatment response.³⁶ In environments where advanced molecular diagnostics are not readily accessible, inflammation-based biomarkers offer a pragmatic means to support evidence-based decision-making and improve prognostic accuracy.³⁷

Although evidence supporting inflammation-based biomarkers in cancer prognosis is steadily growing, the clinical utility of the CRP/albumin ratio in epithelial ovarian cancer remains incompletely defined. Its ease of measurement, low cost, and reproducibility make it particularly attractive for integration into routine risk assessment—especially in resource-limited settings where access to molecular profiling is restricted. Yet, many existing studies have assessed this marker in isolation, without adjusting for established prognostic variables such as performance status, FIGO stage, residual disease, or CA-125 levels. In this study, we aimed to determine whether the pre-treatment CRP/albumin ratio offers independent prognostic value beyond these conventional parameters. Clinically, these effects manifest as cachexia, hypoalbuminemia, and performance status decline not readily apparent on imaging or pathology, often associated with poorer outcomes; they are reflected in inflammatory biomarkers (eg, an elevated C-reactive protein–albumin ratio) that provide prognostic insight beyond what is evident from tumor imaging or histology.¹⁵ Using a relatively large and homogeneously treated cohort of patients with advanced-stage epithelial ovarian cancer, we constructed a comprehensive multivariable model to evaluate its incremental prognostic contribution. This approach may clarify the role of systemic inflammation in shaping clinical outcomes and inform future strategies for individualized treatment planning.

Materials and Methods

This retrospective cohort study was conducted at a high-volume tertiary oncology center in Turkey and included patients treated between January 2010 and December 2024. The study protocol was approved by the institutional ethics committee and conducted in accordance with the ethical principles of the Declaration of Helsinki and applicable national regulations.

Inclusion and Exclusion Criteria

Inclusion Criteria

Patients were eligible for inclusion if they met all of the following criteria:

- (i) female sex and age ≥ 18 years at the time of diagnosis;
- (ii) histologically confirmed epithelial ovarian carcinoma;
- (iii) FIGO 2018 stage III or IV disease;
- (iv) treatment with either primary or interval cytoreductive surgery followed by standard platinum-based chemotherapy (carboplatin and paclitaxel);
- (v) availability of pre-treatment serum CRP and albumin levels measured within 14 days prior to initiation of oncologic therapy; and
- (vi) complete clinical and survival follow-up data.

Exclusion Criteria

Patients were excluded if they had:

- (i) concurrent or metachronous malignancies;
- (ii) evidence of acute infection, autoimmune disorders, or chronic inflammatory conditions at the time of laboratory testing;
- (iii) missing or incomplete clinical, laboratory, or survival data that precluded CRP/albumin ratio calculation or outcome analysis; or
- (iv) receipt of experimental, off-protocol, or non-standard treatments not in accordance with institutional guidelines.

Data Collection

Patient data were retrospectively extracted from institutional electronic medical records and cross-validated with the hospital's oncology registry to ensure completeness and accuracy. Variables collected included age at diagnosis, ECOG performance status, FIGO stage (2018 classification), histologic subtype, tumor grade, type of surgery (primary vs interval debulking), chemotherapy regimen, and key treatment dates.

Laboratory values were obtained from pre-treatment blood samples analyzed in a certified central biochemistry laboratory. CRP (mg/L) and serum albumin (g/dL) levels were measured using standardized immunoturbidimetric assays.

Only laboratory values obtained within 14 days before the initiation of systemic therapy were included to maintain biological relevance. Pre-treatment hemoglobin levels were also recorded due to their potential prognostic relevance in ovarian cancer.

The CRP/albumin ratio was calculated by dividing serum CRP by serum albumin. The date of diagnosis, date of death, and last follow-up were used to calculate overall survival (OS). Patients with implausible or incomplete data were excluded from the final analysis. All data were anonymized prior to statistical evaluation to ensure confidentiality.

Variable Definition and Grouping

The CRP/albumin ratio was evaluated as a categorical variable. For the primary analysis, we dichotomized the cohort by the median CRP/albumin ratio (2.32), which had been predefined in the analysis plan. This choice is commonly applied in similar studies, as it yields balanced groups and helps to reduce the risk of data-driven overfitting. As a sensitivity analysis, we also performed a receiver operating characteristic (ROC) curve using exitus status as the outcome to identify the Youden-optimal threshold with its sensitivity and specificity. Because this threshold showed limited discriminative ability (see Results), the median-based cut-off was retained for the primary analyses.

Outcome Measures and Statistical Analysis

The primary endpoint was overall survival (OS), defined as the time from the date of diagnosis to the date of death from any cause or the last documented follow-up. The secondary endpoint was progression-free survival (PFS), defined as the time from the date of diagnosis to the date of documented disease progression or death, whichever occurred first. Survival outcomes were estimated using the Kaplan–Meier method, and differences between groups were compared using the Log rank test.

Univariate Cox proportional hazards regression models were used to identify variables associated with OS. Variables with a p -value <0.10 in univariate analysis were included in the multivariate model. The final multivariate analysis incorporated age at diagnosis, ECOG performance status, hemoglobin level, and CRP/albumin ratio. Hazard ratios (HRs) with 95% confidence intervals (CIs) were reported. The proportional hazards assumption was tested using Schoenfeld residuals.

All statistical analyses were performed using IBM SPSS Statistics version 27.0 (IBM Corp., Armonk, NY, USA). A two-sided p -value <0.05 was considered statistically significant.

Ethical Considerations

This study was approved by the Ethics Committee of Istanbul Medeniyet University Faculty of Medicine (Approval No: 2025/0043, Date: July 3, 2025) and conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and relevant national regulations. Given the retrospective nature of the study, the requirement for informed consent was waived by the ethics committee. All patient data were anonymized prior to analysis, and no identifiable information was used or disclosed at any stage of the research.

Results

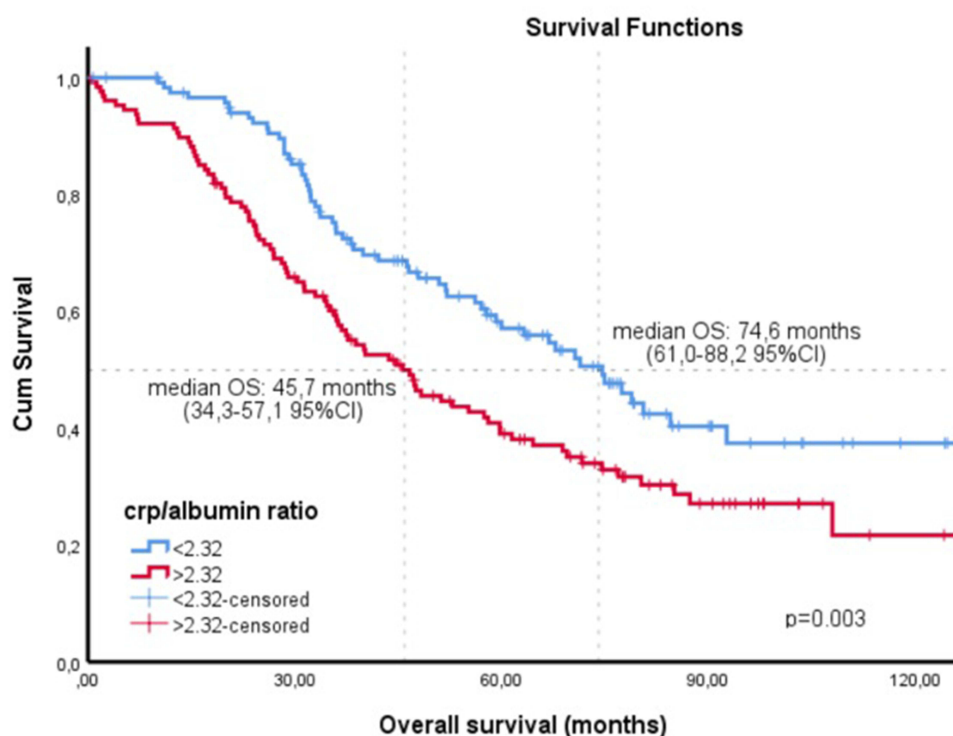
A total of 256 patients with advanced-stage epithelial ovarian cancer were included in the final analysis. Baseline clinicopathological characteristics are summarized in Table 1. Most patients had ECOG 0–1 performance status and FIGO stage III disease, and the majority underwent primary cytoreductive surgery. All tumors were classified as high-grade serous carcinoma, reflecting the typical distribution in advanced-stage disease. Median serum albumin and CRP were 3.9 g/dL and 9 mg/L, respectively. The CRP/albumin ratio had a median value of 2.32, which was used to dichotomize the cohort for subsequent analyses. The median follow-up duration for the entire population was 81.4 months.

The median OS in the entire cohort was 58.1 months (95% CI: 45.7–70.5). Patients with a CRP/albumin ratio <2.32 had significantly longer OS compared to those with higher ratios. Specifically, median OS was 74.6 months (95% CI: 61.0–88.2) in the low-ratio group and 45.6 months (95% CI: 34.2–57.1) in the high-ratio group. This difference was statistically significant (log-rank $p=0.003$). The corresponding 5-year OS rates were 57.1% and 39.1% for the low and high CRP/albumin ratio groups, respectively (Figure 1).

Table 1 Clinicopathological Characteristics of the Study Population

Variable	n (%) or Median (95% CI)
Histologic subtype (high-grade serous)	256 (100)
Tumor grade (high)	256 (100)
Age (mean $\pm$ SD, years)	56.4 $\pm$ 11.6
$\geq$ 65 years	55 (21.5)
< 65 years	201 (78.5)
ECOG Performance Status	
0–1	229 (89.5)
2–3	27 (10.5)
FIGO (2018)	
Stage III	215 (84)
Stage IV	41 (16)
Albumin (g/dL)	3.9 (95% CI: 3.8–4.0)
CRP (mg/L)	9 (95% CI: 7.0–12.0)
CRP/albumin ratio	2.32 (95% CI: 1.79–3.09)
Debulking	
Primary	206 (80.5)
Interval	50 (19.5)

As an additional analysis, we also tested whether an ROC-derived cut-off could better discriminate outcomes. Using survival outcome as the endpoint, the AUC was 0.58 and the Youden-optimal threshold was 0.81, with a sensitivity of 0.85 and a specificity of 0.35. When patients were divided by this 0.81 value, the survival difference was small (median

**Figure 1** Overall survival stratified by pre-treatment CRP/albumin ratio in advanced epithelial ovarian cancer.

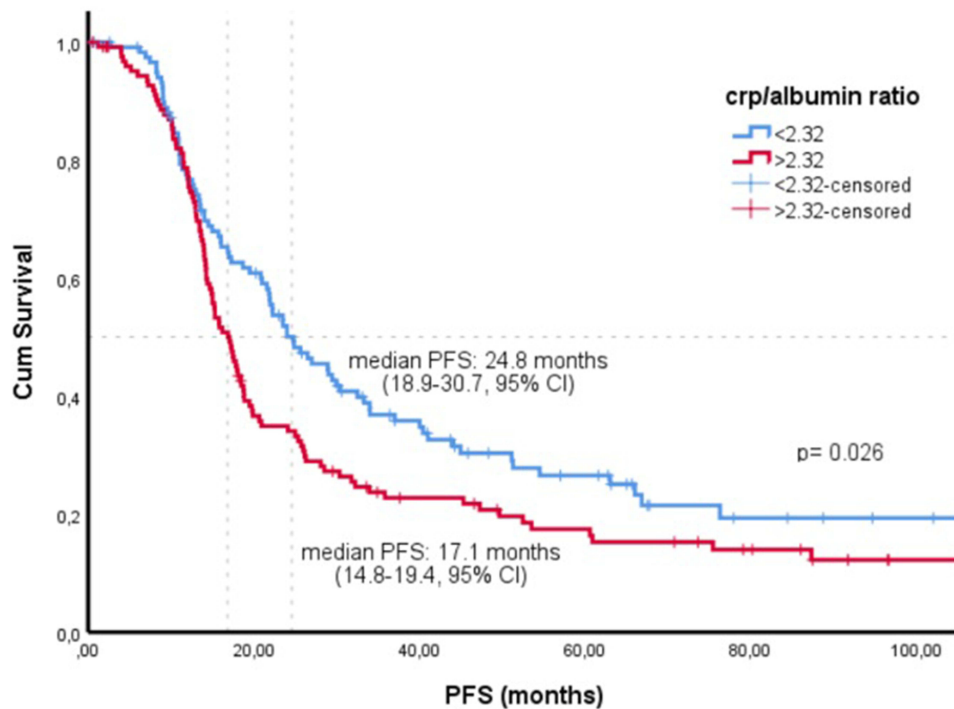


Figure 2 Progression-free survival stratified by pre-treatment CRP/albumin ratio in advanced epithelial ovarian cancer.

OS 51.5 vs 43.9 months). Because of this limited separation and the uneven distribution between groups, we kept the predefined median cut-off of 2.32 for the main prognostic analyses ([Supplementary Figure S1](#)). Details of the ROC analysis are provided in Supplementary Results.

PFS analysis also revealed a significant difference between the two groups. The median PFS in the overall cohort was 19.5 months (95% CI: 16.6–22.4). Patients with a CRP/albumin ratio <2.32 had a median PFS of 24.8 months (95% CI: 18.9–30.7), whereas those with a ratio ≥2.32 had a median PFS of 17.1 months (95% CI: 14.8–19.4). This difference reached statistical significance as well (log-rank $p = 0.026$) ([Figure 2](#)).

In univariate Cox regression analysis, advanced age (≥65 years), ECOG performance status 2–3, FIGO stage IV, and CRP/albumin ratio ≥2.32 were all significantly associated with poorer OS. In multivariate analysis, only age, ECOG status, and CRP/albumin ratio retained independent prognostic significance. A CRP/albumin ratio ≥2.32 was associated with inferior survival (HR = 1.88; 95% CI: 1.12–3.18; $p = 0.018$), as were age ≥65 years (HR = 2.34; 95% CI: 1.55–3.53; $p < 0.001$) and ECOG 2–3 (HR = 1.60; 95% CI: 1.15–2.24; $p = 0.006$). FIGO stage and individual CRP or albumin levels did not retain significance in the multivariate model ([Table 2](#)). Variance inflation factor (VIF) analysis confirmed that there was no significant multicollinearity among the included covariates (all VIF < 2.0).

Table 2 Univariate and Multivariate Analysis Results

Variable	Univariate Analysis			Multivariate Analysis		
	HR	95% CI	p	HR	95% CI	p
Stage						
III	Ref.					
IV	1.64	1.08–2.47	$p=0.019$	1.25	0.91–1.94	$p=0.316$
Age						
<65 years	Ref.					
≥65 years	2.98	2.01–4.12	$p<0.001$	2.34	1.55–3.53	$p<0.001$

(Continued)

Table 2 (Continued).

Variable	Univariate Analysis			Multivariate Analysis		
	HR	95% CI	p	HR	95% CI	p
ECOG status						
0-1	Ref.					
2-3	3.37	2.13–5.33	p=0.003	1.60	1.15–2.24	p=0.006
CRP/alb ratio						
<2.32	Ref.					
≥2.32	1.65	1.18–2.31	p<0.001	1.88	1.12–3.18	p=0.018

Note: Bold values indicate statistically significant results (p < 0.05).

Discussion

This study demonstrates that the pre-treatment C-reactive protein to albumin (CRP/Alb) ratio has prognostic significance in advanced-stage epithelial ovarian cancer. We found that higher CRP/Alb ratios were independently associated with shorter overall survival, even after accounting for age, ECOG performance status, and FIGO stage. These results suggest that systemic inflammation and nutritional status, reflected by this simple ratio, can influence clinical outcomes.

Biologically, the CRP/Alb ratio captures two host-related processes: inflammation and nutritional depletion. Elevated CRP levels indicate systemic inflammatory responses driven by tumor-derived cytokines, while low albumin reflects both chronic disease and reduced physiologic reserve. Taken together, these measures provide a more integrated picture of disease burden and resilience, which may explain their association with outcomes in advanced EOC.

When analyzed separately, CRP and albumin were not significantly associated with overall survival. In contrast, the combined ratio remained significant in multivariable analysis, emphasizing that interpreting these markers together is more informative than considering them alone.

Our findings are consistent with previous reports linking systemic inflammation to aggressive disease behavior in ovarian cancer. For instance, Barik et al described higher CRP/Alb ratios in patients with features such as ascites and nodal disease, although survival was not assessed in their study.⁸ Liu et al also showed that CRP/Alb predicted overall survival and outperformed other inflammation-based indices, but their population included mixed histologies and stages.¹⁵ By focusing only on advanced-stage epithelial ovarian cancer, our work provides a more specific analysis in a uniform clinical setting.

In our cohort, a high pre-treatment CRP/Alb ratio predicted inferior overall survival, a finding that aligns with prior meta-analyses in gynecologic cancers. For example, Li et al reported pooled hazard ratios greater than 1.6 for elevated CRP/Alb in ovarian cancer.³⁴ Many earlier studies either did not adjust for confounders or included heterogeneous populations. By contrast, our study incorporated the CRP/albumin ratio into a multivariable framework and evaluated it using a clinically relevant, median-based cohort-derived cutoff. This approach improves the robustness of our findings and supports the inclusion of inflammation-based indices in prognostic models.

There is increasing recognition that systemic inflammation not only reflects tumor burden but also drives immune suppression, treatment resistance, and clinical decline in ovarian cancer. The CRP/Alb ratio may therefore serve as a surrogate for these underlying mechanisms. Future research should examine composite models that combine CRP/Alb with other indices such as NLR, PLR, SII, or MPVLR.³⁸ When integrated with genomic markers or dynamic clinical parameters like hemoglobin changes or performance status, such models could allow real-time prognostication and better tailoring of therapy, particularly in settings where molecular testing is limited.

Beyond baseline assessment, serial CRP/Alb measurements during treatment may provide additional information. Rising values could indicate tumor progression, infection, or nutritional decline.³⁹ Monitoring changes over time may help to identify patients at higher risk of early deterioration or poor treatment response, allowing earlier supportive interventions. Recent clinical data also emphasize the prognostic relevance of systemic inflammation across diverse disease settings.^{40,41}

In routine clinical practice, the CRP/Alb ratio is attractive because it is simple, reproducible, and based on widely available laboratory tests. An additional strength of our study is that all patients had high-grade serous carcinoma, creating a histologically homogeneous cohort. This uniformity minimizes confounding from subtype-specific biology and strengthens the reliability of our conclusions. In this setting, the CRP/Alb ratio clearly identified a subgroup of patients with poor prognosis despite similar clinical staging. Such patients might benefit from closer monitoring, nutritional support, or early integration of palliative care. The simplicity and accessibility of this marker make it particularly valuable in everyday oncology practice.

This study also has several limitations. First, its retrospective design raises the possibility of selection bias and unmeasured confounders, such as comorbidities or subclinical infections that could influence CRP or albumin levels. In our study, CRP and albumin were assessed in the peri-treatment baseline period, defined as ≥ 14 days after surgery and within 14 days before treatment initiation, when patients were stable and not receiving antibiotics. Although this timing likely reduced the impact of surgical stress, some residual postoperative inflammation cannot be excluded, particularly after primary debulking. Another limitation is that our dataset did not consistently include additional biomarkers such as CA-125 kinetics, HE4, or other inflammation indices (NLR, PLR, SII, mGPS). As a result, we could not adjust our models for these factors. Future prospective studies should incorporate these variables to better define the independent role of the CRP/Alb ratio. Finally, this was a single-center study with an internally derived cutoff, which may limit generalizability. As a single-center retrospective study, our findings may be influenced by institutional practices, selection bias, and data recording variability. Multicenter or prospective validation is warranted to confirm external applicability. Despite including a relatively large and uniformly treated cohort, external validation in multicenter prospective studies is needed to confirm our findings, especially in BRCA-mutated patients and those receiving PARP inhibitors.

Future Directions

Although our study identifies the pre-treatment CRP/albumin ratio as an independent prognostic marker in advanced epithelial ovarian cancer, several critical avenues remain to be explored before it can be adopted into routine clinical practice. Future prospective studies should focus on validating this marker in larger, multicenter cohorts with more diverse patient populations, particularly including those with BRCA mutations or those treated with PARP inhibitors. Given the evolving therapeutic landscape of ovarian cancer, it is essential to determine whether the prognostic value of this marker remains robust across molecular subgroups and novel treatment contexts.

Beyond baseline assessment, the potential of the CRP/albumin ratio as a dynamic biomarker should be investigated. Serial measurements throughout systemic therapy may offer early warning signals of therapeutic resistance, disease progression, or deterioration in nutritional or inflammatory status—particularly in scenarios where imaging findings remain stable. Time-dependent models assessing longitudinal changes in this ratio could provide more nuanced risk stratification and guide treatment modifications in real-time clinical settings.

Another important direction involves integrating the CRP/albumin ratio into multiparametric prognostic models. Its combination with existing systemic inflammation scores such as the modified Glasgow Prognostic Score, neutrophil-to-lymphocyte ratio, and platelet-to-lymphocyte ratio, as well as tumor-intrinsic measures such as the KELIM score and BRCA status, may enhance prognostic accuracy. Development and validation of composite risk models incorporating both host- and tumor-related parameters could support personalized treatment planning and identify patients who may benefit from closer surveillance, early palliative interventions, or intensified therapy.

At the translational level, mechanistic studies are warranted to clarify the biological underpinnings of elevated CRP/albumin ratios in ovarian cancer. Profiling tumor-associated cytokine signatures, inflammatory pathway activation, and immune microenvironment characteristics may reveal correlations between systemic inflammation and specific tumor phenotypes. Such data could inform the design of interventional strategies aiming to modulate systemic inflammation, including immunonutritional support or targeted anti-inflammatory agents, as potential adjuncts to standard therapy.

Finally, international standardization of cut-off values is essential for clinical implementation. Current literature, including our study, relies on internally derived thresholds, which limits generalizability. Pooled analyses and individual-patient data meta-analyses should be prioritized to define clinically relevant and universally applicable cut-off points. Additionally, the performance of the CRP/albumin ratio should be assessed across different healthcare systems,

particularly in resource-constrained settings where molecular diagnostics may be inaccessible but systemic inflammatory markers remain readily available.

In conclusion, while our results support the prognostic relevance of the CRP/albumin ratio in advanced-stage epithelial ovarian cancer, further research should focus on validating its role as a dynamic, integrative biomarker within comprehensive risk models. Such efforts may ultimately enable more personalized, inflammation-informed management strategies for patients facing this challenging disease.

Disclosure

The authors report no conflicts of interest in this work.

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