



# Prognostic Value of Systemic Inflammatory Markers in Patients with Pancreatic Adenocarcinoma



Osama Abu-Shawer MD MS; Thabet Qapaja MD; Motasem Alkhayyat MD; Arjun Chatterjee MD; Mohammed El-Dallal MD; Muhammad Haseeb MD MS

## BACKGROUND

- ❖ Several studies have shown the role of inflammatory markers, especially the neutrophil-to-lymphocyte Ratio (NLR), as indicators of poor prognosis in various gastrointestinal malignancies.
- ❖ We aimed to examine the prognostic value of NLR, among other markers, and their relationship with the presence of baseline distant metastasis in patients with pancreatic adenocarcinoma.

## METHODS

- ❖ We retrospectively reviewed the charts of 355 patients with pancreatic cancer treated at a tertiary cancer center from 2013 to 2018.
- ❖ We examined the relationship between absolute eosinophilic count (AEC), absolute lymphocyte count (ALC), absolute monocytic count (AMC), absolute neutrophil count (ANC), monocyte to lymphocyte ratio (MLR), NLR, and platelet to lymphocyte ratio (PLR) with the presence distant metastases, and overall survival (OS).
- ❖ We used multivariable logistic regression analyses to test the association between the variables and the presence of baseline distant metastases.

Figure 1

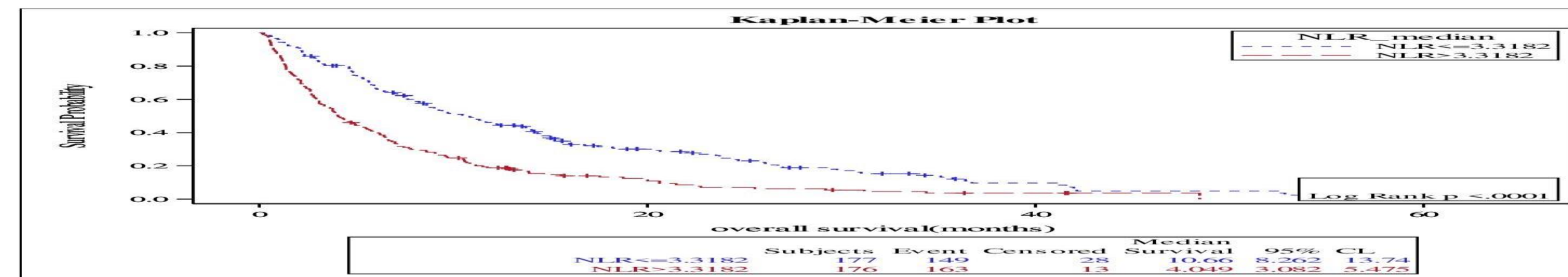


Figure 2

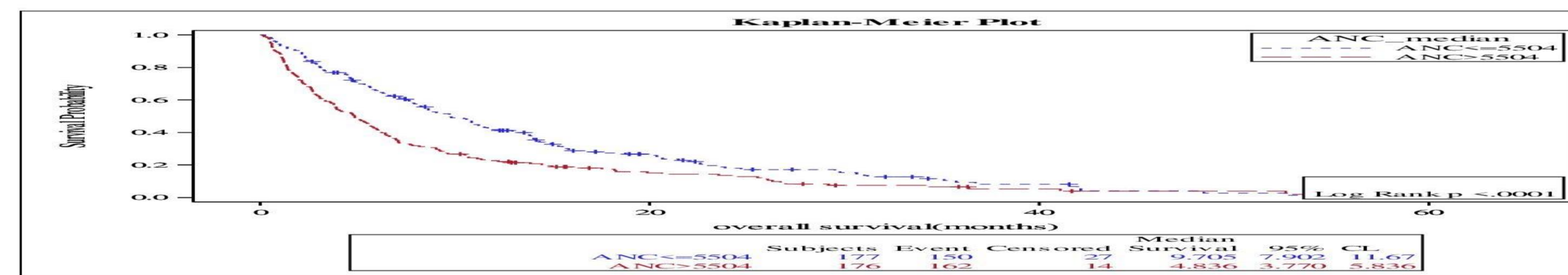


Figure 3

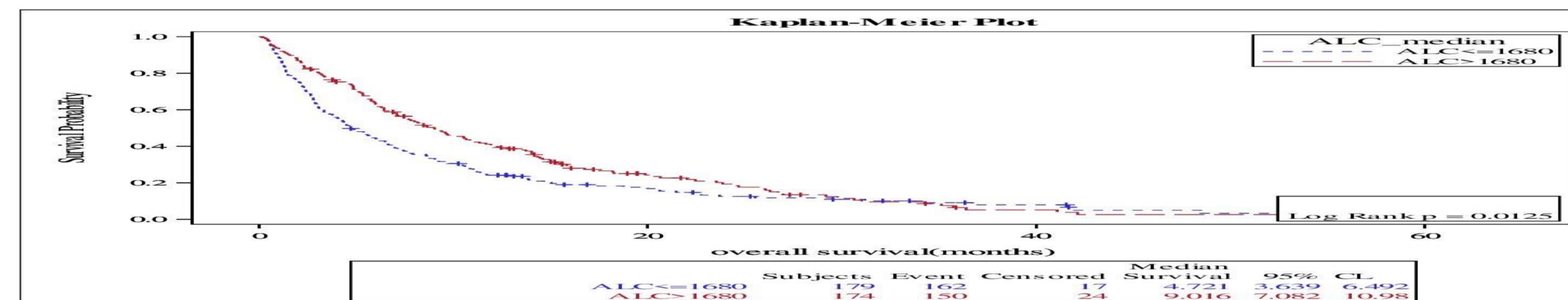


Figure 1. Kaplan Meier curve for overall survival with NLR

Figure 2. Kaplan Meier curve for overall survival with ANC

Figure 3. Kaplan Meier curve for overall survival with ALC

## DISCUSSION

- ❖ High systemic inflammatory markers are associated with poor prognosis (the presence of distant metastasis) and poor OS in patients with pancreatic cancer.
- ❖ Simple laboratory tests such as complete blood counts can be used as markers of poor prognosis and poor OS in patients with pancreatic cancer.

## RESULTS

- ❖ The median age was 60 years, and males comprised 59% of the patients. The ROC value of 3.3 was determined as the cutoff value for NLR.
- ❖ High NLR (NLR > 3.3  $\mu$ L) was significantly associated with the presence of distant metastasis at diagnosis (p-value < 0.0001, Odds Ratio (OR): 1.7, CI: 2.6-4.0). High baseline ANC ( $\geq 5500/\mu$ L), high AMC ( $\geq 600/\mu$ L), and high MLR ( $\geq 0.3$ ) were also associated with baseline distant metastases (p-value: 0.02, 0.001, and < 0.0001 respectively).
- ❖ Multivariable analysis showed that high NLR (p-value, 0.0003, OR 2.5 95% CI 1.5-4.1) was an independent risk factor for distant metastasis at presentation.
- ❖ High ANC, NLR, MLR, and PLR and low ALC were associated with poor OS, (p-value: < 0.0001, < 0.0001, < 0.0001, 0.04, and 0.01, respectively).

## CONTACT

Osama Abu-Shawer, MD MS  
Abushao@ccf.org