Comparison of inflammatory markers in Behçet's disease

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Background: Behçet's disease (BD) is a systemic variable vasculitis. Estimation of the disease activity in BD is difficult. There are no reliable laboratory markers of BD activity. Erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), neutrophil-lymphocyte ratio (NLR), and systemic immune-inflammation index (SII) are known indicators of inflammation that are elevated in active Behçet's disease.

**The aim** of this study was to compare the NLR, SII, ESR, and CRP in measuring BD activity.

Material and methods.
This study included 90 BD patients. The median age of patients was 32 years [26; 37], and the median disease duration was 11 years [5; 15]. The activity of BD was determined using the Behçet's disease current activity form (BDCAF). High disease activity was defined as a BDCAF score ≥4. NLR was calculated using the formula: neutrophils/lymphocytes. SII was calculated as neutrophil count ✕ platelet count/lymphocyte count. A full blood count was determined on the SYSMEX XN 1000 hematology analyzer (Japan). The ESR values were measured by the Westergren method (N≤ 20 mm/h), and the CRP levels were measured by the immunonephelometric method (N≤ 5 mg/L).

Results.
The areas under the ROC curve (AUC) for NLR, SII, CRP, and ESR were 0.721 (95% CI: 0.598–0.843), 0.705 (95% CI: 0.577–0.832), 0.787 (95% CI: 0.671–0.903), and 0.689 (95% CI: 0.556–0.821), respectively (Figure 1). The optimal cut-off values for NLR, SII, CRP, and ESR were 2.05 (60.9% sensitivity, 70.1% specificity), 571.65 (73.9% sensitivity, 62.7% specificity), 5.25 mg/L (73.9% sensitivity, 79.1% specificity), and 20.5 mm/h (52.2% sensitivity, 83.6% specificity), respectively.

Fig.1. Comparison of area under ROC curves for NLR, SII, CRP, and ESR for determining the high disease activity
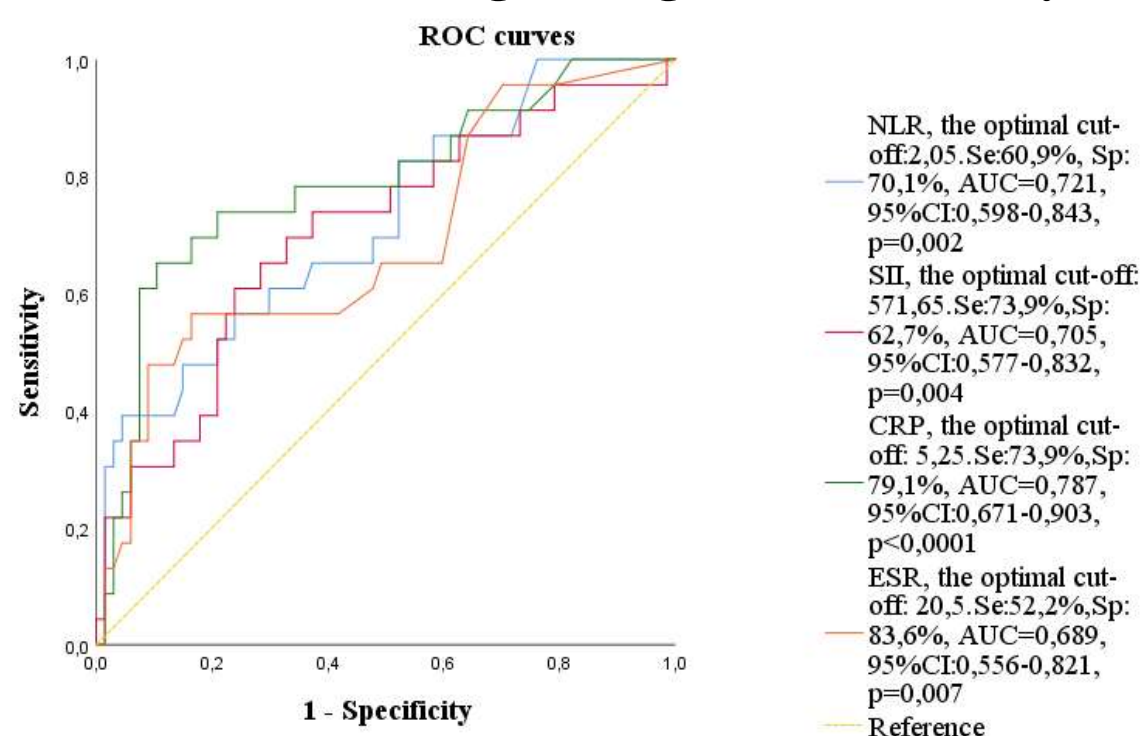
Conclusion: NLR, SII, ESR, and CRP are useful biomarkers for determining high BD activity. CRP had the largest area under the ROC curve (AUC=0.787). The optimal cut-off point of CRP was 5.25 mg/L with 73.9% sensitivity and 79.1% specificity.