

Association between systemic inflammatory indices (NLR, PLR, SII, SIRI) and handicap severity in acute unilateral peripheral vestibulopathy

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Background/Objectives: Acute unilateral peripheral vestibulopathy (AUVP) is the third most common cause of peripheral vestibular vertigo, with presumed viral etiology and considerable symptom burden. This study examined the association between systemic immune-inflammatory biomarkers, including the neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), systemic immune-inflammation index (SII), and systemic inflammation response index (SIRI), and dizziness-related disability in AUVP, as assessed by the Dizziness Handicap Inventory (DHI). **Methods:** This retrospective single-center cohort study was conducted at Sveti Duh Clinical Hospital, Zagreb, from January 2021 to May 2025, including 45 AUVP patients and 45 healthy controls. Laboratory parameters were obtained from which the following indices were calculated: NLR, PLR, SII, and SIRI. Symptom severity was evaluated with the DHI, and patients were stratified into severe and non-severe groups. Group comparisons and receiver operating characteristic (ROC) analyses were performed to assess discriminatory value. **Results:** Compared with controls, AUVP patients showed significantly higher leukocyte and neutrophil counts, as well as elevated inflammatory indices. DHI analysis revealed the Physical domain had the greatest impact, followed by the Functional domain, whereas the Emotional domain was less affected. Severe cases exhibited significantly higher NLR, PLR, and SII values. ROC analysis identified PLR as the most accurate predictor of severe dizziness-related disability (AUC=0.81), followed by SII (AUC=0.73) and NLR (AUC=0.67). **Conclusion:** Inflammatory indices, particularly PLR, NLR, and SII, are associated with greater dizziness-related disability in AUVP. These readily available, cost-effective biomarkers may support risk stratification and highlight the contribution of immune-inflammatory mechanisms to AUVP pathophysiology.

Key words: acute unilateral vestibulopathy, DHI, systemic inflammatory indices, vestibular neuritis