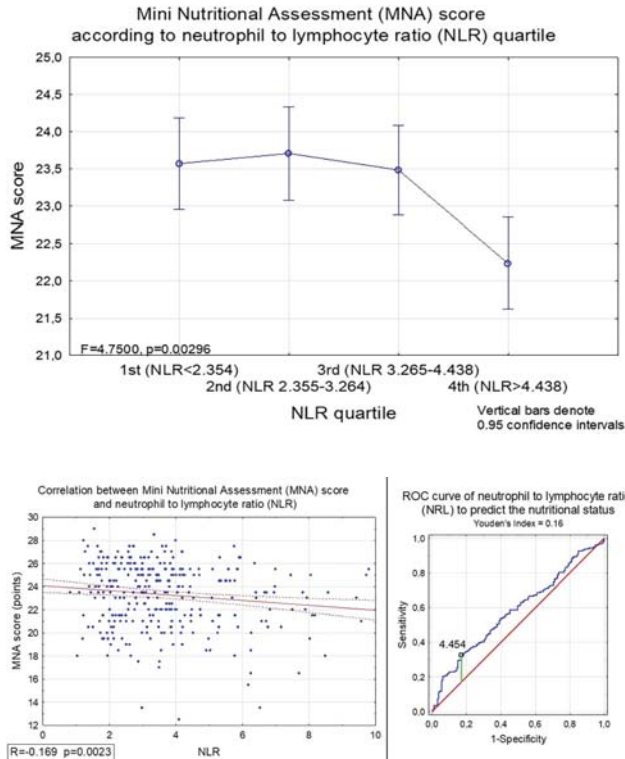


impaired nutritional status (MNA < 24), resulted in a cut-off point of 4.45 and AUC (0.58, $p = 0.009$) - Figure 2.

Conclusions: Patients with high NLR tend to have poorer nutritional status. However, NLR alone is not strong enough to predict nutritional status but may support other parameters in a comprehensive model. The study shows a link between inflammation and malnutrition in HFREF, highlighting the need for multidisciplinary, integrated care to address these coexisting issues.



Heart Failure - Chronic Heart Failure, Epidemiology, Prognosis, Outcome

Embolic complications and heart failure in patients with infective endocarditis

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Infective endocarditis (IE) is a severe disease damaging native/prosthetic valves and artificial intracardiac devices, which often has a complicated course with a high frequency of deaths. The most common first signs of IE include heart failure (HF) and embolic events, which are difficult to predict.

Aim: to study the clinical and laboratory features of modern IE, to determine the predictors of an unfavorable prognosis.

Materials and methods: A prospective cohort study included 345 patients with significant IE who were admitted to a tertiary hospital in years 2012 - 2023. All patients underwent standard laboratory and instrumental examinations, triple microbiological examinations of blood samples and assessment of hospital complications. In addition the neutrophil-to-lymphocyte ratio (NLR) was calculated and the level of neutrophil extracellular traps (NET) was studied.

Results: The average age was 56 (37-71) years, 16.5% ($n = 57$) of patients were ≥ 75 years, 66.0% ($n = 225$) were men. Anamnesis of cardiovascular diseases was noted in 71.0% ($n = 245$), chronic kidney disease - in 36.1% ($n = 121$), pulmonary diseases - in 9.0% ($n = 31$), Charlson index was 5 (2-8) points. The median duration of IE diagnosis from the first symptoms was 28 (12-49) days. IE of unchanged valves was

present in 49.9% ($n = 172$), the predominance of left-sided localization was detected in 66.0% ($n = 228$). Shortness of breath (70.0%, $n = 242$) and edema of lower extremities (40.9%, $n = 141$) were the most common manifestations of HF. Anemia was present in 73.9% ($n = 255$), leukocytosis in 63.5% ($n = 219$), thrombocytopenia in 41.4% ($n = 141$), an increase in CRP was noted in 92.8% ($n = 320$), the median values of NLR were 6.6 (3.6-11.1), NET - 4.95 (2.4-7.7%). Embolic complications at admission were present in 45.2% ($n = 156$), HF - 78.1% ($n = 270$). Hospital mortality was 32.0% ($n = 109$). A threshold value of NLR greater than 20.0 was an independent predictor of hospital mortality [OR 9.7 (95% CI 1.9-50.1), $p < 0.05$], and more than 3.0 was a predictor of embolic events [OR 2.7 (95% CI 1.4-5.4), $p < 0.05$]. NET level of more than 14.0% independently predicted death in hospital [OR 14.2 (95% CI 1.6-141.0), $p < 0.05$]. HF and embolic events were independent predictors of hospital mortality [OR 4.2 (95% CI 2.3-7.8), $p < 0.05$] and [OR 2.9 (95% CI 1.5-5.3), $p < 0.05$], respectively.

Conclusion: IE is more likely to affect middle-aged and elderly patients with a high incidence of concomitant pathology and involvement of previously unchanged valves. Typical clinical manifestations of IE are HF and embolic events, while laboratory manifestations include anemia, inflammation, and thrombocytopenia, which determine an unfavorable prognosis. High values of the neutrophil-to-lymphocyte ratio and neutrophil extracellular traps make it possible to predict the risk of embolic events and death in hospital.

Heart Failure - Chronic Heart Failure, Epidemiology, Prognosis, Outcome

Prognostic implications of renal function trajectories in heart failure management

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Introduction: The interaction between the heart and kidneys, known as cardiorenal syndrome, means that worsening renal function (WRF) in heart failure can lead to a vicious cycle, where declining renal function further impairs cardiac performance. Monitoring and managing WRF in heart failure is crucial, as it is associated with poorer prognosis, increased hospitalization rates, and higher mortality.

Purpose: This study is to compare baseline characteristics, treatment regimens, and clinical outcomes in HF patients with WRF versus those with stable or improved renal function at first visit to HF clinic.

Methods: This retrospective cohort study involved 343 HF patients with HFREF across 10 hospitals from January 2021 to June 2023. WRF is defined by increase in serum creatinine at first HF clinic visit by $\geq 26.5 \mu\text{mol/L}$ from baseline or an increase of $\geq 25\%$ from baseline values. Patients were categorized into WRF ($n = 49$, 14.3%) and stable/improved renal function ($n = 294$, 85.7%). Comparative analysis included demographics, comorbidities, medication use, ejection fraction [EF], NYHA class and clinical outcomes (HF hospitalization, mortality, and composite outcomes).

Results: Patients with WRF were slightly older (58.8 ± 14.9 years) than those with stable/improved function (56.5 ± 13.6 years, $p = 0.280$). Comorbidities such as hypertension (77.6% vs. 65.2%, $p = 0.089$) and dyslipidaemia (65.3% vs. 51.7%, $p = 0.077$) were more prevalent in the WRF group. At first visit, renin-angiotensin-aldosterone system inhibitors (RAAS) use was lower in the WRF group (68.8% vs. 84.4%, $p = 0.009$) but higher beta-blocker use (97.9% vs. 90.1%, $p = 0.077$). Mineralocorticoid receptor antagonists (MRA), sodium-glucose cotransporter-2 (SGLT2) inhibitor and frusemide use were comparable in both groups. There was no difference with HF medications prescription at 3 months. The WRF group showed significant EF improvement ($24.3 \pm 4.6\%$ to $41.8 \pm 9.7\%$, $p = 0.019$), whereas the stable/improved group had a non-significant change ($26.5 \pm 8.0\%$ to $33.7 \pm 12.7\%$, $p = 0.315$). The WRF group had a higher composite outcome rate at 3 months (22.9% vs. 7.6%, $p < 0.001$), HF hospitalization at 3 months (16.3% vs. 5.8%, $p = 0.02$) and mortality at 3 months (8.5% vs. 2.2%, $p = 0.037$).

Conclusion: HF patients with WRF experienced greater EF improvement but higher hospitalization and adverse outcomes. Close monitoring and optimizing renal function are vital in HF management to improve patient outcomes.