Abstract: **P949**

**Comparison of inflammation based prognostic scores in patients with stable heart failure with reduced ejection fraction**

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**Topic(s):**
Chronic Heart Failure – Epidemiology, Prognosis, Outcome

**Citation:**

Background. Elevated inflammatory markers are characteristic for heart failure with reduced ejection fraction (HFrEF) correlating with disease severity and prognosis. Evidence emerges that heart failure is triggered by inflammation directly, meaning that the progression of HF is a function of individual inflammatory host response. We aimed to investigate and compare the impact of well-established inflammation based scores on survival of stable patients with stable HFrEF.

Methods. Patients with stable HFrEF undergoing routine ambulatory care between January 2011 and November 2017 have been identified from a prospective registry. Comorbidities and laboratory data at baseline were assessed. All-cause mortality was defined as the primary study endpoint. The modified Glasgow Prognostic Score (mGPS) as well as the Neutrophil-to-Lymphocyte ratio (NLR), the Monocyte-to-Lymphocyte ratio (MLR) and the Platelet-to-Lymphocyte ratio (PLR) were calculated. The association of the scores with heart failure severity and impact on overall survival were determined.

Results. Data was complete and analyzed for a total of 443 patients. The median age of the study population was 64 years (IQR 53-72) and 73% of the patients were male. The median body mass index (BMI) was 26.6kg/m2 (IQR 23.8-30.2). Median NT-proBNP levels were 2053pg/ml (IQR 842-4345) with most patients presenting in the NYHA classes II (178, 40%) and III (173, 39%). Patients received well titrated dosages of guideline recommended heart failure therapy. The mGPS was 0 for 352 (80%), 1 for 76 (17%) and 2 for 14 (3%) patients, respectively. All scores correlated with heart failure severity reflected by NT-proBNP \([p<0.001 for mGPS]\) and NYHA class \([p<0.001 for mGPS]\). All scores were associated with all-cause mortality in the univariate analysis, however after adjustment for age, gender and kidney function only the mGPS and PLR remained significantly associated with outcome \([adj. HR 2.87 (2.00-4.11), p<0.001 for mGPS and 1.25 (1.02-1.54), p=0.030 for PLR]\). The ROC was highest for mGPS and MLR \([0.652 and 0.656 respectively]\). Solely mGPS remained significantly associated with mortality when NT-proBNP was included in the multivariate model \([adj. HR 1.87 (95%CI 1.20-2.91), p=0.006 for mGPS]\). Kaplan Meier analysis confirmed the discriminatory power of mGPS (Figure 1).

Conclusions. Enhanced inflammation is more common in advanced heart failure. Among established inflammation scores merely mGPS is associated with survival in HFrEF patients independently of NT-proBNP. This relationship emphasizes the significance of the individual proinflammatory response on prognosis. This easily available score may help clinicians to identify HFrEF patients with worse prognosis with urgent need for intensified therapy and/or alternate treatment options.
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