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Session Title: Clinically Based Observational Studies

Abstract 8672: Neutrophil-to-Lymphocyte Ratio Predicts Prognosis in Patients with Chronic Coronary Heart Disease

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Purpose: A relationship between blood cell count and survival has been observed both in healthy individuals and in patients with stable angina, unstable angina, myocardial infarction or heart failure. We tested the hypothesis that a complete blood count with subfraction concentrations would provide prognostic information in patients with chronic coronary heart disease (CHD), and that this information is additive to a standard diagnostic work-up.

Methods: We prospectively examined 2370 consecutive patients with chronic CHD, defined by a > 50% stenosis at coronary angiography and/or history of myocardial infarction (MI). We examined the association between complete blood count, clinical variables and future cardiac events (cardiac death and non-fatal MI).

Results: During follow-up (median 46 months), 147 patients (6.2%) died of cardiac causes and 81 (3.4%) experienced a non-fatal MI. Using univariate analysis, reduced hematocrit (< 36% if male and < 40% if female) and a neutrophil-to-lymphocyte (N/L) ratio > 2.42, but not white blood cell count and platelet count, were significantly associated with a reduced cardiac event-free survival ($P < 0.001$ and $P < 0.0001$, respectively). The impact of anemia and high N/L ratio on survival persisted after adjustment for age, diabetes mellitus, left ventricular ejection fraction and angiographic extent of coronary atherosclerosis. The negative prognostic impact of a high N/L ratio persisted even after adjustment for both clinical variables and other routine laboratory variables (risk ratio: 1.57, 95% confidence interval: 1.19 to 2.08, $p = 0.0014$).

Conclusion: An elevated N/L ratio is a significant predictor of adverse prognosis in patients with chronic CHD.

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