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Baseline white blood cell count is an independent predictor of long-term cardiovascular mortality in patients with non-ST-segment elevation acute coronary syndrome, but it does not improve the risk classification of the GRACE score

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OBJECTIVES

To investigate the prognostic significance of baseline white blood cell count (WBCc) in non-ST-segment elevation acute coronary syndrome (NSTEMI-ACS) and its additive predictive value beyond the Global Registry of Acute Coronary Events (GRACE) score.

METHODS

We included 1,315 consecutive NSTEMI-ACS patients. Patients were divided in quartiles according to the WBCc (cells per 1 mm³) i.e. Q1 <6,850, Q2 = 6,850-8,539, Q3 = 8,540-10,857 and Q4 ≥10,858. The study end point was 3-year cardiovascular death (CVD).

RESULTS

The median age of the study population was 76 years. Overall, 335 patients (25.5%) died with 211 of these (16%) suffering from CVD. Patients in Q4 showed a higher cumulative probability of CVD compared to patients in Q1-Q3. On multivariable analysis, patients in Q4 were at higher risk of CVD [hazard ratio (HR) = 1.47, 95% confidence interval (CI) 1.09-1.98, p = 0.011]. WBCc as a continuous variable was also independently associated with the study end point (HR = 1.043; 95% CI 1.02-1.07; p = 0.001). However, the incorporation of WBCc into the GRACE score did not improve either prediction of risk (C-index = 0.796 for GRACE score with or without WBCc) or classification of risk [relative integrated discrimination improvement = 0.0154, 95% CI -0.029 to 0.0618; continuous net reclassification improvement = -0.0676, 95% CI -0.2149-0.0738].

CONCLUSIONS

WBCc was an independent predictor of 3-year CVD in patients with NSTEMI-ACS. However, it did not add prognostic information beyond the GRACE score.