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


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

METHODS
We included 1,315 consecutive NSTE-ACS patients. Patients were divided in quartiles according to the WBCc (cells per 1 mm(3)) 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 NSTE-ACS. However, it did not add prognostic information beyond the GRACE score.