Prognostic Factors in Patients with Acute Coronary Syndrome without ST-segment Elevation

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Dear Editor,

We read the article, "Prognostic factors in patients with acute coronary syndrome without ST-segment elevation" written by Santos JC[1]. The authors concluded that the assessment of renal function and lymphocyte count provide potentially useful information for the prognostic stratification of patients with non-ST elevation ACS.

We know that patients with end-stage renal disease have a higher risk for and a worse outcome after myocardial infarction. However, lesser degrees of renal dysfunction also predict an adverse prognosis in patients with acute MI.

Several studies have shown the magnitude of this effect[2].

We also know that patients with a higher white blood cell (WBC) count – which is a marker of inflammation, have an increased risk for adverse events, in-hospital mortality, and short- and long-term mortality after a non-ST elevation ACS, as well as for acute ST-elevation MI[3]. The value of the baseline WBC in patients with non-ST-elevation MI or unstable angina was evaluated in the TACTICS-TIMI 18 trial[4], which concluded that higher WBC was associated with significantly lower TIMI flow grades, myocardial perfusion grades and more extensive coronary disease. This was found in relation to WBC but not to lymphocytes, because many factors in the ICU environment may lead to lymphocytopenia (trauma, hemorrhage, viral infections, etc.). Therefore, in order to establish a relationship between lymphocyte count and prognosis, further evaluation and objective evidence are needed.

Keywords

Acute Coronary Syndrome; Inflammation; Myocardial Infarction, Prognosis, Lymphopenia.

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References

1. Santos JC, Rocha Mde S, Araújo Mda S. Prognostic factors in patients with acute coronary syndrome without ST segment elevation. Arq Bras Cardiol. 2013;100(5):412-21.
2. Al Suwaidi J, Reddan DN, Williams K, Pieper KS, Harrington RA, Califf RM, et al; GUSTO-IIb, GUSTO-III, PURSUIT. Global Use of Strategies to Open Occluded Coronary Arteries. Platelet Glycoprotein IIb/IIIa in Unstable Angina: Receptor Suppression Using Integrilin Therapy; PARAGON-A Investigators. Platelet IIb/IIIa Antagonism for the Reduction of Acute coronary syndrome events in a Global Organization Network. Prognostic implications of abnormalities in renal function in patients with acute coronary syndromes. Circulation. 2002;106(8):974-80.
3. Madjid M, Awan I, Willerson JT, Casscells SW. Leukocyte count and coronary heart disease: implications for risk assessment. J Am Coll Cardiol. 2004;44(10):1945-56.
4. Sabatine MS, Morrow DA, Cannon CP, Murphy SA, Demopoulos LA, DiBattiste PM, et al. Relationship between baseline white blood cell count and degree of coronary artery disease and mortality in patients with acute coronary syndromes: a TACTICS-TIMI 18 (Treat Angina with Aggrastat and determine Cost of Therapy with an Invasive or Conservative Strategy-Thrombolysis in Myocardial Infarction 18 trial)substudy. J Am Coll Cardiol. 2002;40(10):1761-8.

Reply

As regards Dr. İşcen's comments, we have some points to consider.

All patients diagnosed with unstable angina (UA) or non-ST segment elevation (STE) acute myocardial infarction (AMI) admitted to our hospital from Janurary to December 2010 were included in our study. In an attempt to eliminate possible confounders, patients presenting with malignant neoplasias, infectious diseases, autoimmune diseases, and those who had recently suffered a trauma or undergone surgery – conditions which could lead to leukocytosis, neutrophilia or lymphopenia, were excluded. The inclusion and exclusion criteria were described in the respective article[1].

We verified that complete white blood cell and neutrophil counts in our sample were not able to discriminate patients at a higher risk for adverse events (7781 ± 3252 /mm^3 vs. 8140 ± 2835 /mm^3, p = 0.5; and 5653 ± 3058 /mm^3 vs. 5220 ± 2496 /mm^3, p = 0.4, respectively). However, the logistic regression analysis showed an independent and significant relationship between lymphocyte count and combined events (OR: 1.02; 95%CI: 1.01-1.04; p = 0.03). Some studies have suggested that the count of leukocytes and their subpopulations may predict fatal and non-fatal outcomes in patients with non-STE acute coronary syndrome[2,3]. Cannon et al[4] and Núñez et al[5] demonstrated that the relationship between leukocytosis, neutrophilia and a worse prognosis is valid for patients with AMI, but not for those with UA. Lloyd-Jones et al[6] and Zouridakis et al[7] found that only lymphopenia, among the subpopulations of white blood cells, was associated with future cardiac events in these patients. Since, in our article[1], two thirds of our sample was comprised of patients with UA, we suggested that the lymphocyte count in this population probably provides a better identification of patients with a worse prognosis.

Sincerely,
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Mário de Seixas Rocha
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References

1. Santos JC, Rocha Mde S, Araújo Mda S. Prognostic factors in patients with acute coronary syndrome without ST segment elevation. Arq Bras Cardiol. 2013;100(5):412-21.
2. Barron HV, Cannon CP, Murphy SA, Braunwald E, Gibson CM. Association between white blood cell count, epicardial blood flow, myocardial perfusion, and clinical outcomes in the setting of acute myocardial infarction: a thrombolysis in myocardial infarction 10 substudy. Circulation. 2000;102(19):2329-34.
3. Furman MI, Gore JM, Anderson FA, Budaj A, Goodman SG, Avezum A, et al. Elevated leukocyte count and adverse hospital events in patients with acute coronary syndromes: findings from the Global Registry of Acute Coronary Events (GRACE). Am Heart J. 2004;147(1):42-8.
4. Cannon CP, McCabe CH, Wilcox RG, Bentley JH, Braunwald E. Association of white blood cell count with increased mortality in acute myocardial infarction and unstable angina pectoris. OPUS-TIMI 16 Investigators. Am J Cardiol. 2001; 87(5):636-9.
5. Núñez J, Sanchis J, Bodí V, Nunez E, Mainar L, Heatta AM, et al. Relationship between low lymphocyte count and major cardiac events in patients with acute chest pain, a non-diagnostic electrocardiogram and normal troponin levels. Atherosclerosis. 2009;206(1):251-7.
6. Lloyd-Jones DM, Camargo CA Jr, Giugliano RP, O'Donnell CJ. Effect of leukocytosis at initial examination on prognosis in patients with primary unstable angina. Am Heart J. 2000;139(5):867-73.
7. Zouridakis EG, Garcia-Moll X, Kaski JC. Usefulness of the blood lymphocyte count in predicting recurrent instability and death in patients with unstable angina pectoris. Am J Cardiol. 2000;86(4):449-51.