The Polyvalence of C-Reactive Protein in Coronary Artery Bypass Grafting

Marco Túlio Zanettini, Jacira Pisani Zanettini, João Otávio Zanettini
Eletrocor Laboratório Cárdio-Diagnóstico, Caxias do Sul, RS – Brazil

Dear Editor,

We congratulate Mezzomo et al[1] for the thorough research based on data of a Tertiary Cardiology Center, correlating high levels of Ultra-sensitive C-Reactive Protein (us-CRP) and postoperative complications of Coronary Artery Bypass Grafting surgery (CABG).

Current evidence reveals independent association between cardiovascular disease and major cardiovascular events with high levels of us-CRP, as well as the reduction of this inflammatory marker and the associated outcomes by administering statins[2-4].

Hence, in this study, were us-CRP's actually the predictors of respiratory infection in the CABG postoperative period, in spite of the lack of adjustment for functional classroom, left ventricular ejection fraction and administration of statins?

Keywords

C-reactive protein; myocardial revascularization; preoperative care.

Mailing Address: Marco Túlio Zanettini •
Olinto Mario Luchese, 318 – Santa Catarina - 95032-250 – Caxias do Sul, RS – Brazil
E-mail: marcotz@eletrocorcardiologia.com.br
Manuscript received November 05, 2011; revised manuscript received November 05, 2011; accepted December 20, 2011.

References

1. Mezzomo A, Bordin Júnior OL, Portal VL. Proteína C Reativa pré-operatória prediz infecção respiratória após cirurgia de revascularização miocárdica. Arq Bras Cardiol. 2011;97(5):365-71.
2. Bickel C, Rupprecht HJ, Blankenberg S, Espiniola-Klein C, Schlitt A, Rippin G, et al. Relation of markers of inflammation (C-reactive protein, fibrinogen, von Willebrand factor, and leukocyte count) and statin therapy to long-term mortality in patients with angiographically proven coronary artery disease. Am J Cardiol. 2002;89(8):901-8.
3. Vaduganathan M, Stone NJ, Lee R, McGee EC Jr, Malaisrie SC, Silverberg RA, et al. Perioperative statin therapy reduces mortality in normolipidemic patients undergoing cardiac surgery. J Thorac Cardiovasc Surg. 2010;140(5):1018-27.
4. Mannacio VA, Iorio D, DeAmicis V, Di Lello F, Musumeci F. Effect of rosuvastatin pretreatment on myocardial damage after coronary surgery: a randomized trial. J Thorac Cardiovasc Surg. 2010;136(6):1541-8.

Reply

We would like to thank for the fitting remarks on this article, which underscore the relevance and prevalence of the subject.

CRP is the biological marker which is being studied over the last few decades as an arteriosclerosis mediator, as well as a predictor for inflammatory disease[1]. Since statins play an important role in the protection and combat against inflammation, we believe to be important reflecting on its administration over the preoperative period of coronary artery bypass grafting as a way to reduce CRP and, consequently, on the complications of this procedure. The studies already referred to in this article, as the one performed by Clark and Vaduganathan[2,3], have evidenced that the administration of statin in the preoperative period reduced the morbidity and mortality over the postoperative period. In his turn, Mannancio et al[4] in 2010, have shown only reduction in the myocardial damage, not impacting mortality significantly.

In our study, patients receiving statin presented CRP lower than 3 mg/l in 73% of the cases versus 59.7% with us-CRP > 3mg/l ($p = 0.013$). However, in multivariate analysis with the clinical outcomes of higher incidence, such as atrial fibrillation and infections, protection was not observed, compared to those which were not administered with statin[5].

Relating to the functional class, patients with EF < 30% and in functional class IV were excluded from the

study, and these patients presented higher morbidity and mortality in coronary artery bypass grafting. The patients with light to moderate systolic dysfunction have not been treated separately. Taking into consideration that only 54% of the sample only had this data collected, controlling the Left Ventricular Ejection Fraction was not possible[5].

In view of the above, we conclude that the us-CRP was predictor of respiratory infection in this sample. The adjustment was made for the main variables (those with p value < 0.20 in the bivariate analysis) or the ones that could increase the risk of respiratory infection, such as: advanced age, tobacco addiction, diabetes, COPD, obesity and duration of mechanical ventilation[5].

References

1. Szmitko PE, Wang CH, Weisel RD, de Almeida JR, Anderson TJ, Verma S. New markers of inflammation and endothelial cell activation: Part I. Circulation. 2003;108(16):1917-23.
2. Clark LL, Ikonomidis JS, Crawford FA Jr, Crumbley A 3rd, Kratz JM, Stroud MR, et al. Preoperative statin treatment is associated with reduced postoperative mortality and morbidity in patients undergoing cardiac surgery: an 8-year retrospective cohort study. J Thorac Cardiovasc Surg. 2006;131(3):679-85.
3. Vaduganathan M, Stone NJ, Lee R, McGee EC Jr, Malaisrie SC, Silverberg RA, et al. Perioperative statin therapy reduces mortality in normolipidemic patients undergoing cardiac surgery. J Thorac Cardiovasc Surg. 2010;140(5):1018-27.
4. Mannacio VA, Iorio D, DeAmicis V, Di Lello F, Musumeci F. Effect of rosuvastatin pretreatment on myocardial damage after coronary surgery: a randomized trial. J Thorac Cardiovasc Surg. 2010;136(6):1541-8.
5. Mezzomo A, Bordin Júnior OL, Portal VL. Proteína C Reativa pré-operatória prediz infecção respiratória após cirurgia de revascularização miocárdica. Arq Bras Cardiol.2011; 97(5):365-71.