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Ventilation disorders diagnosed preoperatively in patients scheduled for isolated on-pump CABG: Do they increase inflammatory response in the early postoperative period?

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Introduction: Pulmonary function testing is an important element in the process of preparing a patient for elective heart surgery.

Aim: The aim of the study was to assess respiratory system disorders prior coronary artery bypass grafting (CABG) and to determine their influence on inflammation markers in the early postoperative period.

Material & Methods: A total of 397 patients, 306 male and 91 female, aged 65.3±7.8 years were enrolled for the study. The patients were scheduled for elective coronary revascularization in the Department of Cardiac Surgery of the Pomeranian Medical University in Szczecin, Poland. On the basis of spirometry tests performed on the day of admission (AsSPIRO D200 v.101., ASPEL S.A., Poland), the patients were divided into three groups according to international guidelines on the classification of ventilation disorders: Restrictive, obstructive, no disorders.

Results: At the admission to hospital, no statistically significant differences were found between the groups regarding sex and age distribution, prevalence of diabetes, BMI, euroSCORE and CRP. The only statistically significant parameter that differed between the two groups was average ejection fraction (p=0.02), which was lower in the group of patients with restrictive disorders in comparison to the group with no disorders. In assays performed on postoperative day 2, patients with restrictive ventilation disorders were found to have a significantly higher CRP concentration in comparison to the group without disorders and the group with obstructive disorders. The increase in CRP concentration was observed in patients both with and without diabetes. Further CRP assays performed on postoperative day 4 indicate higher concentrations in both groups with ventilation disorders. However, these differences did not reach statistical significance.

Conclusions: In patients after on-pump CABG, changes in the respiratory system diagnosed as restrictive ventilation disorders temporarily increase inflammatory response in the early postoperative period. Diabetes did not modify the inflammatory response, although average CRP concentrations in all groups and assays were slightly higher in patients with diabetes.

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