

Association between anoxia time and markers of acute kidney injury after coronary artery bypass grafting with cardiopulmonary bypass

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ABSTRACT

The use of cardiopulmonary bypass has an impact on the presentation of acute kidney injury after coronary artery bypass grafting, with clinical alteration of renal biomarkers. However, renal alterations after cardiac surgeries are still not completely understood, and there are multiple study factors, such as anoxia time. The objective of this study was to analyze the relationship between the duration of anoxia and the markers of acute kidney injury in the postoperative period of myocardial revascularization with cardiopulmonary bypass. This is a cohort, analytical, longitudinal, descriptive and retrospective study, consisting of 104 patients operated on in S o Lu s do Maranh o. Acute kidney injury was characterized according to the criteria of Kidney Disease: Improving Global Outcomes. Patients with previous chronic kidney injury and without acute postoperative kidney injury were excluded. The Graph Prisma software, version 8.0, was used, with the Shapiro Wilk normality test and Spearman's correlation. A total of 23 patients were included in the analysis. The anoxia, creatinine, and urea data in the Shapiro-Wilk test did not show normal distribution ($p = 0.0015$, 0.0014 , and 0.1423 , respectively). The correlation coefficients between anoxia time, creatinine and urea levels were 0.0521 ($p = 0.813$) and 0.111 ($p = 0.958$), respectively. Although the literature highlights the impact of cardiopulmonary bypass time on renal performance, although it is proportional to the duration of anoxia, the results of this study suggest a weak correlation between anoxia time and renal biomarkers of kidney injury after surgery. These findings reinforce the complexity of the pathophysiology of acute kidney injury after coronary artery bypass grafting, indicating the need for a multifaceted approach to understanding this complication. In addition, the importance of continuous investigation is highlighted for a better understanding of the factors involved and to improve future diagnoses, contributing to the technical and scientific advancement in the perioperative management of cardiac surgery.

Keywords: Anoxia, Acute kidney injury, Myocardial revascularization.

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