Evaluation of the Relationship Between CAD Risk Factors and Number of Grafts in CABG: A Retrospective Case-Control Study

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Introduction: Traditional risk factors for coronary artery disease (CAD), such as diabetes, smoking, age, and gender, are well established. However, their predictive value for the number of grafts required during coronary artery bypass grafting (CABG) remains unclear. This study aimed to evaluate whether classical CAD risk factors can help estimate the number of diseased vessels and predict graft requirement in CABG patients.
Methods: This retrospective case-control study was conducted at Istanbul Medipol University Hospital between September 2024 and February 2025. A total of 324 patients aged 50–70 who underwent CABG between 2019 and 2023 were included. Variables analyzed were diabetes, age, gender, and smoking history. The case group included patients with ≥4 grafts; the control group included those with 1–3 grafts. Chi-square tests were used for categorical comparisons. Binary logistic regression identified independent risk factors for higher graft numbers. Odds ratios (OR) and 95% confidence intervals (CI) were calculated using IBM SPSS. Ethical approval was obtained.
Results: Of the 324 patients, 260 (80.2%) were male and 64 (19.8%) female. Mean age was 60.7 ± 5.35 years. Chi-square tests showed no significant differences between groups in terms of diabetes, smoking, age, or gender. Logistic regression revealed: Diabetes: OR = 1.160; 95% CI: 0.746–1.805, Gender (male): OR = 1.279; 95% CI: 0.735–2.226, Smoking: OR = 0.716; 95% CI: 0.408–1.255, Age: OR = 0.826; 95% CI: 0.530–1.288. No variable was independently associated with ≥4 grafts ($p > 0.05$).
Discussion: While classical CAD risk factors predict disease presence, they may not estimate lesion extent or graft need in CABG patients. Broader models using coronary calcium scoring, genetic markers, and inflammatory biomarkers are recommended for future research.
Keywords: coronary artery bypass graft (CABG), risk factors, coronary artery disease