The effect of intravenous vitamin C infusion on periprocedural myocardial injury for patients undergoing elective percutaneous coronary intervention.

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Abstract

BACKGROUND:
This small study has determined the effect of vitamin C on myocardial reperfusion in patients undergoing elective percutaneous coronary intervention (PCI). This study was to explore whether antioxidant vitamin C infusion before the procedure is able to affect the incidence of periprocedural myocardial injury (PMI) in patients undergoing PCI.

METHODS:
In this prospective single-centre randomized study, 532 patients were randomized into 2 groups: the vitamin C group, which received a 3-g vitamin C infusion within 6 hours before PCI, and a control group, which received normal saline. The primary end point was the troponin I-defined PMI, and the second end point was the creatine kinase (CK)-MB-defined PMI. Separate analyses using both end points were performed. PMI was defined as an elevation of cardiac biomarker values (CK-MB or troponin I) > 5 times the upper limit of normal (ULN), alone or associated with chest pain or ST-segment or T-wave changes.

RESULTS:
After PCI, the incidence of PMI was reduced, whether defined by troponin or by CK-MB, compared with the control group (troponin I, 10.9% vs 18.4%; P = 0.016; CK-MB, 4.2% vs 8.6%; P = 0.035). Logistic multivariate analysis showed that preprocedure use of vitamin C is an independent predictor of PMI either defined by troponin I (odds ratio [OR], 0.56; 95% confidence interval [CI], 0.33-0.97; P = 0.037) or by CK-MB (OR, 0.37; 95% CI, 0.14-0.99; P = 0.048).

CONCLUSIONS:
In patients undergoing elective PCI, preprocedure intravenous treatment with vitamin C is associated with less myocardial injury.

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