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**EFFECTS OF A NOVEL ASCORBATE-BASED PROTOCOL ON INFARCT SIZE AND VENTRICLE FUNCTION IN ACUTE MYOCARDIAL INFARCTION PATIENTS UNDERGOING PERCUTANEOUS CORONARY ANGIOPLASTY**

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**Introduction**

This study was designed to test the hypothesis that high-dose ascorbate prior to reperfusion followed by low chronic oral doses ameliorate myocardial reperfusion injury (MRI) in acute myocardial infarction patients subjected to primary percutaneous coronary angioplasty (PCA).

**Material and methods**

A randomized double-blind placebo-controlled and multicenter clinical trial was performed on acute myocardial infarction (AMI) patients who underwent PCA. Sodium ascorbate (320 mmol/l, n = 53) or placebo (n = 46) was infused 30 min prior to PCA. Blood samples were drawn at enrolment (M1), after balloon deflation (M2), 6–8 h after M2 (M3) and at discharge (M4). Total antioxidant capacity of plasma (ferric reducing ability of plasma – FRAP), erythrocyte reduced glutathione (GSH) and plasma ascorbate levels were determined in blood samples. Cardiac magnetic resonance (CMR) was performed at 7–15 days and 2–3 months following PCA. Ninety-nine patients were enrolled. In 67 patients, the first CMR was performed, and 40 patients completed follow-up.

**Results**

The ascorbate group showed significantly higher ascorbate and FRAP levels and a decrease in the GSH levels at M2 and M3 (p < 0.05). There were no significant differences in the infarct size, indexed end-systolic volume and ejection fraction at both CMRs. There was a significant amelioration in the decreased ejection fraction between the first and second CMR in the ascorbate group (p < 0.05).

**Conclusions**

Ascorbate given prior to reperfusion did not show a significant difference in infarct size or ejection fraction. However, it improved the change in ejection fraction determined between 7–15 days and 2–3 months. This result hints at a possible functional effect of ascorbate to ameliorate MRI.