

The REFLO-STEMI (REperfusion Facilitated by Local adjunctive therapy in ST-Elevation Myocardial Infarction) trial: a randomised controlled trial comparing intracoronary administration of adenosine or sodium nitroprusside with control for attenuation of microvascular obstruction during primary percutaneous coronary intervention

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Plain English summary

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Plain English summary

Heart attacks are often caused by a blood clot in a heart artery obstructing blood flow to heart muscle but, despite removing this blockage, blood flow may not be fully restored because of poor flow in the small distal branches supplying heart muscle. Heart specialists do not currently know how to prevent this, although adenosine and sodium nitroprusside (SNP), two well-studied agents, may improve the blood supply to heart muscle by limiting small vessel obstruction during treatment of a heart attack.

The REperfusion Facilitated by LOcal adjunctive therapy in ST-Elevation Myocardial Infarction (REFLO-STEMI) study randomly allocated 247 patients presenting within 6 hours of a heart attack to (1) standard angioplasty (control group), (2) standard therapy plus adenosine or (3) standard therapy plus SNP. The effectiveness of the drugs was assessed using magnetic resonance imaging (MRI), which can accurately quantify the amount of small vessel obstruction and heart muscle damage that will ultimately form scar tissue. The degree of heart muscle damage and obstruction to blood flow on MRI are strongly related to subsequent complications following a heart attack.

We found that the study drugs did not reduce either the amount of heart muscle damaged or the extent of small vessel obstruction following a heart attack. There may even be a small increase in heart muscle injury and a higher risk of heart failure during follow-up associated with high-dose adenosine given during the treatment of a heart attack. Our study, therefore, discourages the use of high doses of adenosine to prevent heart muscle injury.

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