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# Remote ischaemic conditioning in patients with ST-elevation myocardial infarction treated with percutaneous coronary intervention: an updated meta-analysis of clinical outcomes

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## Abstract

**Background:** All previous meta-analyses including clinical outcomes after remote ischaemic conditioning (RIC) in patients with ST-elevation myocardial infarction **(**STEMI) treated with percutaneous coronary intervention (PCI) demonstrated that RIC significantly reduced all-cause mortality and major adverse cardiovascular events (MACE). Following the publication of these meta-analyses, three new randomised controlled clinical trials (RCT) including 5712 patients were reported. The objective of this study was to perform an updated meta-analysis about the effectiveness of RIC in reducing MACE in patients with STEMI undergoing PCI.

**Methods:** The search strategy included only RCT identified in MEDLINE, Embase, SCOPUS, and Cochrane (up to February 2020). Eligible studies included any type of RIC. The study adhered to the Preferred Reporting Items of Systematic Reviews and Meta-Analysis (PRISMA) statement. The studies quality was evaluated with Cochrane Risk of Bias tool and Jadad score.

**Results:** Twelve RCT were included in the analysis ($Q$ = 18.8, $p$ = 0.065, $I^2$ = 41.5%, 95%CI 0.0-70.3). Globally, 8239 STEMI patients with 816 MACE were reported with follow-ups between 1 and 45 months. Random effects model showed no significant effect of RIC on composite clinical endpoints (OR = 0.77, 95%CI 0.59-1.01, $p$ = 0.105). Sensitivity analysis demonstrated that only the exclusion of CONDI-2/ERIC PPCI trial modified the significance of the global effect (OR 0.66, 95%CI 0.47-0.93), favouring RIC intervention.

**Conclusions:** The current updated meta-analysis showed that use of RIC around the time of PCI for STEMI treatment added no significant benefit for clinical outcomes assessed between 6 and 45

months after the procedure. These conclusions are in direct contrast to previously published meta-analyses.

**Keywords:** Ischaemic conditioning; meta-analysis; myocardial infarction; percutaneous coronary intervention; remote ischaemic conditioning.

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