

Intra-aortic balloon pump counterpulsation (IABP) for myocardial infarction complicated by cardiogenic shock.

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Source

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Abstract

BACKGROUND:

Intra-aortic balloon pump counterpulsation (IABP) is currently the most commonly used mechanical assist device for patients with cardiogenic shock due to acute myocardial infarction. Although there is only limited evidence by randomised controlled trials, the current guidelines of the American Heart Association/American College of Cardiology and the European Society of Cardiology strongly recommend the use of the intra-aortic balloon counterpulsation in patients with infarction-related cardiogenic shock on the basis of pathophysiological considerations as also non-randomised trials and registry data.

OBJECTIVES:

To determine the effect of IABP versus non-IABP or other assist devices guideline compliant standard therapy, in terms of efficacy and safety, on mortality and morbidity in patients with acute myocardial infarction complicated by cardiogenic shock.

SEARCH STRATEGY:

Searches of CENTRAL, MEDLINE and EMBASE, LILACS, IndMed and KoreaMed, registers of ongoing trials and proceedings of conferences were conducted in January 2010, unrestricted by date. Reference lists were scanned and experts in the field contacted to obtain further information. No language restrictions were applied.

SELECTION CRITERIA:

Randomised controlled trials on patients with myocardial infarction complicated by cardiogenic shock.

DATA COLLECTION AND ANALYSIS:

Data collection and analysis were performed according to a published protocol. Individual patient data were provided for five trials and merged with aggregate data. Summary statistics for the primary endpoints were hazard ratios (HR's) and odds ratios with 95% confidence intervals (CI).

MAIN RESULTS:

Six eligible and two ongoing studies were identified from a total of 1410 references. Three compared IABP to standard treatment and three to percutaneous left assist devices (LVAD). Data from a total of 190 patients with acute myocardial infarction and cardiogenic shock were included in the meta-analysis: 105 patients were treated with IABP and 85 patients served as controls. 40 patients were treated without assisting devices and 45 patients with LVAD. HR's for all-cause 30-day mortality of 1.04 (95% CI 0.62 to 1.73) provides no evidence for a survival benefit. While differences in survival were comparable in patients treated with IABP, with and without LVAD, haemodynamics and incidences of device related complications show heterogeneous results.

AUTHORS' CONCLUSIONS:

Available evidence suggests that IABP may have a beneficial effect on the haemodynamics, however there is no convincing randomised data to support the use of IABP in infarct related cardiogenic shock.