

Intraaortic balloon pump fails to improve mortality rate in cardiogenic shock patients: The IABP-SHOCK II study

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A balloon pump inserted in the aorta is currently the most widely used support device in the treatment of cardiogenic shock and, since its introduction in 1968, has been used in several million people. However, there is still only limited evidence that the intraaortic balloon pump (IABP), one of the oldest medical devices in cardiology, is actually beneficial for the patient. Only a few registry studies and clinical trials have shown that the IABP can improve blood pressure and the perfusion of the coronary arteries.

Based on these studies, international guidelines recommend the use of an IABP in patients with cardiogenic shock. However, because cardiologists are not entirely convinced of its efficacy, an IABP is currently used in only 25-40% of shock patients. It was for these reasons that the IABP-SHOCK II trial was designed, aiming to show that the IABP can improve mortality if used in conjunction with optimal [medical therapy](#) and early reopening of the [infarct](#)-related artery.

Approximately 5-10% of patients after a [heart attack](#) experience the complication of cardiogenic shock, a shock which results from an inability of the heart to meet the body's demand for oxygen. In Europe around 60-70,000 patients are diagnosed with cardiogenic shock each year. In the past decade mortality related to cardiogenic shock has been reduced, mainly by early reopening of the infarct-affected artery by early balloon inflation. Nevertheless, the mortality rate in these patients

is still extremely high, with approximately 50% dying within the first 30 days.

The IABP-SHOCK II trial - the largest trial ever performed in cardiogenic shock - randomised 600 patients enrolled in 37 centres in Germany to either an IABP or conventional optimal medical treatment alone. The hypothesis tested was that the IABP could reduce the rate of mortality within 30 days.

However, the study found no reduction in 30-day mortality rate in the IABP group when compared to the [control group](#) having standard care alone. The primary results are shown in the Figure attached, with no effect over time between the two study groups. Several subgroups were also evaluated and here too there was no clear benefit found for the IABP.

Similarly, the IABP showed no improvement in blood pressure, no reduction in treatment time in the intensive care unit, no decrease in the duration or dose of drugs prescribed, and no improvement in organ [perfusion](#). On the other hand, the trial results showed that the IABP did not induce complications, and was shown to be a safe device.

Presenting the results, Professor Holger Thiele from the University of Leipzig Heart Centre in Germany said: "This large multicentre trial was unable to show a benefit for the currently most widely used mechanical support device in cardiogenic shock."

Provided by European Society of Cardiology

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