

The benefits of reperfusion therapy

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The wider use of reperfusion therapy in patients with heart attack (AMI) can save millions of lives in Europe. Effective reperfusion therapy in an AMI patient can cut the individual risk of dying by half. AMI is caused by a sudden blockage of a coronary artery, one of the vessels supplying the heart muscle with oxygen and nutrients. Effective reperfusion therapy provides a timely and sustainable reopening of the blockage.

The WHO MONICA project showed that in European centres in the mid-1990s, in-hospital mortality of AMI patients was 13%; this was a time when only about 40% of the patients had reperfusion therapy. Today, specialist centres can provide effective reperfusion therapy to more than 90% of their AMI patients. In such centres, in-hospital mortality rate is now as low as around 5%.

The first development in reperfusion therapy was the application of fibrinolytic agents to dissolve the blood clots causing the vessel blockage. Analysis of data from earlier studies reveals that, on average, fibrinolytic agents can reduce infarct-related mortality rate by 18% compared with no reperfusion therapy. Fibrinolytic therapy is universally available and is still the mainstay of reperfusion therapy where healthcare resources are limited.

More modern catheter-based reperfusion strategies, however, are more effective. Compared with what can be achieved by clot-buster drugs, catheter-based therapy reduces infarct-related mortality by a further 37%. Using this approach, the [coronary artery](#) is re-opened mechanically with a balloon catheter and vessel patency is usually stabilised by

placement of a stent. Potent adjunct antithrombotic drug therapy prevents recurrent [clot formation](#). The larger survival benefit from catheter-based reperfusion therapy as compared with fibrinolytic therapy can be attributed to a higher success rate in reopening blocked vessels (90% versus 40-60%) and to better sustainability.

If no reperfusion therapy is initiated and the infarct-related coronary artery continues to be blocked, the [heart muscle](#) supplied by this vessel is destined to die. Loss of functional heart muscle can cause death by pump failure or break-down of normal heart rhythm. Moreover, it is a major cause of long-term illness due to heart failure. Effective reperfusion therapy can prevent the death of heart muscle cells and salvages a large proportion of the heart muscle at risk. In this way, reperfusion therapy effectively prevents chronic illness. The percentage of heart-muscle salvage varies to a large extent on reperfusion modality, timing of reperfusion and patient characteristics.

Catheter-based reperfusion usually salvages around 60% of the heart muscle at risk. For the individual patient this often means a normal life, despite having suffered a [heart attack](#).

Source: European Society of Cardiology ([news](#) : [web](#))

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