

Mechanical Chest Compressions for Cardiac Arrest Just as Good as Manual



In the event of cardiac arrest outside of a hospital it is important to provide effective chest compressions without interruption. Creating blood flow reduces the risk of brain damage and improves the chances of survival. A new Swedish study shows that mechanical treatment yields results that are at least as good as manual treatment.

The new findings are being presented at the annual ESC (European Society of Cardiology) conference in Amsterdam. Research on cardiac arrest has focused for many years on improving treatment by increasing blood flow in cardiopulmonary resuscitation and by lowering the body temperature in order to limit brain damage and increase the chance of survival. In recent years there has been a growing interest in mechanical chest compression, and a few products are now available on the market. But there have been no rigorous scientific studies of their function.

After a small pilot study in collaboration with the company that developed the LUCAS device for mechanical chest compressions, a comprehensive clinical study was started in 2008. The study looked at 2,589 patients with cardiac arrest from six ambulance areas in Sweden, the Netherlands, and England. They were randomly placed either in a group that received mechanical chest compressions or in a group that underwent traditional treatment with manual chest compressions according to guidelines.

Patients' survival and neurological condition were monitored from four hours after the cardiac arrest up to six months after they were discharged from hospital. The results show no significant differences between the groups – both groups survived to the same extent and in equally good neurological condition. Survival after four hours was equally high (23.6% with mechanical treatment vs. 23.7% with manual). The proportion of survivors in the best health (based on a scale assessing neurological function) when they left the hospital was 8.3 per cent following mechanical treatment and 7.8 per cent after manual. The corresponding figures after six months were 8.5 per cent vs. 7.6 per cent.

- The study shows that mechanical treatment is as good, or at least as good, as manual. Our results show that the method is just as safe and protects the brain just as well, says Sten Rubertsson, professor and specialist consultant at Uppsala University and Uppsala University Hospital.

Despite the lack of any significant differences in survival and health, mechanical treatment may be preferable in some cases.

- Treating a patient in a speeding vehicle can expose ambulance staff to risks, and performing manual treatment for a long period is physically strenuous. It's also advantageous for cardiac arrest in connection with acute coronary x-rays, says Sten Rubertsson.

About the study: The study comprises 2,589 patients from six ambulance areas in Sweden, the Netherlands, and England, 15 hospitals and 700 ambulance staff. It was planned and directed by Sten Rubertsson at Uppsala University, but in collaboration with and funded by the company PhysioControl/Jolife AB, which makes LUCAS. The equipment was developed by Jolife AB, a small Swedish company that was later acquired by PhysioControl. Data was analysed in collaboration with Uppsala Clinical Research Center.

Source: Uppsala Clinical Research Center via [AlphaGalileo](#)

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