

A comparison of active compression–decompression cardiopulmonary resuscitation with standard cardiopulmonary resuscitation for cardiac arrests occurring in the hospital

Background: Recent studies have demonstrated improved cardiopulmonary circulation during cardiac arrest with the use of a hand-held suction device (Ambu CardioPump) to perform active compression-decompression cardiopulmonary resuscitation (CPR). The purpose of this study was to compare active compression-decompression with standard CPR during cardiac arrests in hospitalized patients.

Methods: All patients over the age of 18 years who had a witnessed cardiac arrest while hospitalized at our center were enrolled in this trial; they were randomly assigned according to their medical-record numbers to receive either active compression-decompression or standard CPR. The study end points were the rates of initial resuscitation, survival at 24 hours, hospital discharge, and neurologic outcome. Compressions were performed according to the recommendations of the American Heart Association (80 to 100 compressions per minute; depth of compression, 3.8 to 5.1 cm [1.5 to 2 in.]; and 50 percent of the cycle spent in compression).

Conclusions: In this preliminary study, we found that, as compared with standard CPR, active compression-decompression CPR improved the rate of initial resuscitation, survival at 24 hours, and neurologic outcome after in-hospital cardiac arrest. Larger trials will be required to assess the potential benefit in terms of long-term survival.

1. The study aimed to compare active compression-decompression CPR with **standard / enhanced** CPR.
2. The device used in the study is known as the **Ambu CardioPump / Ambu Resuscitator**
3. All patients enrolled in the trial were over the age of **16 / 18**.
4. Patients were assigned to receive either active compression-decompression or **conventional / standard** CPR.
5. The study focused on several end points, including survival at **12 / 24** hours.
6. Compressions were recommended to be performed at a rate of **60 to 80 / 80 to 100** per minute.
7. The depth of compression was specified to be between **3.8 to 5.1 / 2.5 to 4.5** centimeters.
8. One of the findings was that active compression-decompression CPR improved the rate of initial **resuscitation / diagnosis**.
9. The study concluded that further research is needed to assess the potential benefit in terms of **short-term / long-term** survival.
10. Neurologic outcome was one of the outcomes measured after **in-hospital / out-of-hospital** cardiac arrest.