

Uninterrupted chest-compressions key to survival in cardiac arrest outside hospital setting

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This is Dr. Ahamed Idris of UT Southwestern Medical Center. Credit: UT Southwestern Medical Center

Maximizing the proportion of time spent performing chest compressions during cardiopulmonary resuscitation (CPR) substantially improves survival in patients who suffer cardiac arrest outside a hospital setting, according to a multicenter clinical study that included UT Southwestern Medical Center.

The findings, available in today's issue of *Circulation*, come from the largest clinical investigation to evaluate the association between chest

compressions by emergency medical service (EMS) providers before the first attempted defibrillation and survival to [hospital discharge](#). Out-of-hospital [cardiac arrest](#) is a leading cause of premature death worldwide, and survival is often less than 5 percent.

One of the most important aspects of quality CPR is the proportion of time spent performing chest compressions, but EMS providers typically perform chest compressions only 50 percent of the total time spent on resuscitative efforts.

"It's a common problem, because rescuers are involved in so many other tasks - checking for a pulse, starting intravenous therapy and giving ventilation, among other things," said Dr. Ahamed Idris, professor of emergency medicine at UT Southwestern and a pioneer in resuscitation research and CPR. Dr. Idris also is the principal investigator for the Dallas portion of the new study, conducted at seven clinical centers across North America.

"Compressions are being interrupted half of the time or more, and that has a detrimental effect on the survival of patients," Dr. Idris said. "This study reinforces that interrupting chest compressions has a bad effect on survival. It also provides a rationale for relatively simple changes to CPR training and practice, that if implemented are likely to improve survival."

Dallas-area paramedics and firefighters are being trained to begin CPR immediately and to administer uninterrupted chest compressions for two minutes before re-checking the heart rhythm or using a defibrillator to shock the heart. UT Southwestern's emergency medicine program provides medical oversight for EMS providers in more than a dozen Dallas-area cities.

In this study, researchers studied data from patients in the Resuscitation

Outcomes Consortium (ROC) who had suffered from cardiac arrest with a heart rhythm indicating ventricular fibrillation or ventricular tachycardia. The researchers focused on the effect of the number of chest compressions paramedics administered per minute before they shocked the heart.

"People who received chest compressions 60 to 80 percent of the time during CPR did better than those who received fewer chest compressions," Dr. Idris said.

Previous animal studies have demonstrated that interruptions in chest compressions decrease coronary and cerebral blood flow. Based on further clinical and laboratory observations, the American Heart Association and the European Resuscitation Council Guidelines for Cardiopulmonary Resuscitation in 2005 recommended increasing the proportion of time spent delivering chest compressions.

In 2008 the American Heart Association updated its CPR guidelines and now advocates that bystanders only perform continuous chest compressions for cardiac arrest instead of combining [chest compressions](#) with mouth-to-mouth ventilation.

Source: UT Southwestern Medical Center ([news](#) : [web](#))

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