MedicalXpress

Using chest compressions first just as successful as immediate defibrillation after cardiac arrest

September 9 2010

Chest compressions before defibrillation in patients with sudden cardiac arrest is equally successful as immediate treatment with an electrical defibrillator, according to a new study by the University of Michigan Health System.

Few people who suffer cardiac arrest outside of a hospital survive. U-M physicians, along with a team of international experts, examined two promising rescue strategies: chest compressions first vs. defibrillation first.

Their results, published online Thursday in *BMC Journal*, show that both timing strategies are effective, yet chest compressions before defibrillation may be best in events where emergency response times are longer than five minutes.

"Current evidence does not support the notion that chest compressions first prior to defibrillation improves the outcome of patients in out-of-hospital cardiac arrest; instead it appears that both treatments are equivalent," says lead study author Pascal Meier, M.D., an interventional cardiologist at the U-M Cardiovascular Center.

One-year survival rates were higher among those who had chest compressions first. Data also suggests chest compressions may benefit cardiac arrests with a prolonged response time.

The study pooled data from four randomized trials that included a total of 1,503 patients. Researchers compared patient survival rates after emergency medical service providers performed at least 90 seconds of chest compressions before electrical defibrillation.

"The compressions-first approach appears to be as good as the defibrillation-first approach, especially if there are delays to EMS arriving on-scene," says senior author Comilla Sasson, M.D., an emergency medicine physician researcher at the University of Colorado. "This has major policy implications."

Sasson continues: "Our study shows that chest compressions matter so even more emphasis should be placed on doing high-quality chest compressions both by laypeople providing bystander CPR and EMS providers."

Sasson worked on the study while at the U-M where she created a body of work focused on out-of-hospital cardiac arrest and resuscitation, including demographic and racial differences in cardiac arrest survival.

EMS providers assess approximately 300,000 people with cardiac arrest in the United States each year. Only about 8 percent of people who have sudden cardiac arrest outside of a hospital survive. There's an urgent need to find ways to save lives of those whose heart has suddenly stopped beating.

When administered as soon as possible, chest compressions in conjunction with cardiopulmonary resuscitation, and, in some cases, rapid treatment with a defibrillator — a device that sends an electric shock to the heart to try to restore its normal rhythm — can be lifesaving.

When delivered by EMS professionals, CPR is a combination of rescue

breathing and chest compressions to keep oxygen-rich blood circulating until an effective heartbeat is restored.

Bystanders are encouraged to immediately begin CPR using only chest compressions until professional help arrives, according to the American Heart Association.

In the coming weeks, the AHA is expected to launch its 2010 guidelines for CPR and emergency cardiovascular care.

"Based on our study, current guidelines emphasizing early defibrillation still are important," Meier says.

"However, since the outcomes with the chest compression-first approach were not inferior and might be even better in the long-term, and in case of longer response times, this study may have an impact on future guidelines."

More information: Reference: "Chest compressions before defibrillation for out of hospital cardiac arrest: A meta-analysis of randomized controlled clinical trials," *BMC Journal.*
American Heart Association Resuscitation Guideline updates
www.heartcheckmark.biz/present … l?identifier=3035517

Provided by University of Michigan Health System