More compressions, fewer interruptions lead to higher cardiac arrest survival

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Survival rates from out-of-hospital sudden cardiac arrest almost doubled when professional rescuers using cardiopulmonary resuscitation (CPR) gave better chest compressions and minimized interruptions to them, according to research reported in *Circulation: Journal of the American Heart Association*.

"It's a back-to-basics message. Even with professional rescuers, starting IVs and delivering medications can take a back seat to good quality chest compressions," said Alex G. Garza, M.D., M.P.H., lead author of the study and associate professor of emergency medicine at the Washington Hospital Center and Georgetown University School of Medicine in Washington, D.C.

Garza's study tracked results from changes in resuscitation protocols implemented by the Kansas City Emergency Medical Services (EMS) in 2006. The Kansas City EMS put the highest priority on hands-on time to provide chest compressions with limited interruptions. Rescuers performed 50 chest compressions before pausing to provide two breaths. (American Heart Association guidelines call for 30 compressions followed by two breaths.) Other changes included the rescuers delaying intubating the patient and administering medications.

Overall survival from out-of-hospital cardiac arrest increased from 7.5 percent to 13.9 percent after the EMS department made the changes to its resuscitation practices.

Comparing the 36 months prior to the protocol shift with the 12 months afterwards, the researchers also found:

- Of patients whose cardiac arrest was witnessed by bystanders and who were initially in ventricular fibrillation, the success of resuscitation in restoring a heartbeat and getting the patient to the hospital alive improved from 37.8 percent (54 of 143) to 59.6 percent (34 of 57 patients).
- Of patients whose cardiac arrest was witnessed by bystanders and who were in ventricular fibrillation, survival to hospital discharge rose from 22.4 percent (32 of 143) to 43.9 percent (25 of 57).
- Of the 25 discharged patients, 88 percent scored well on measures of brain function.

"It takes five to seven chest compressions to raise the pressure enough to begin driving blood into the heart tissue," Garza said. "If you stop too often to provide a couple of breaths, then you haven't helped the heart much and you have to start building pressure all over again."

Nearly 300,000 sudden cardiac arrest (SCA) victims are treated by EMS in the United States each year, according to the American Heart Association. SCA is an abrupt loss of heart function; it usually occurs after the heart's electrical impulses become rapid or erratic, preventing the heart from effectively pumping blood.

"In that five- to 10-minute period after an SCA, a lot of evidence shows that if you do chest compressions to keep blood going to the heart muscle, defibrillation is far more likely to work," Garza said.

Source: American Heart Association (news : web)