Medical Xpress

Efforts to improve AED usage increase bystander defibrillation in public but not at home

August 30 2015

Efforts to improve automated external defibrillator (AED) usage increase bystander defibrillation in public places but not at home, reveals a study of more than 25 000 cardiac arrest patients presented at ESC Congress today by Dr Steen Hansen, a PhD student in the Department of Health, Science and Technology at Aalborg University in Denmark. Efforts included increased numbers of AEDs, cardiopulmonary resuscitation (CPR) education and a nationwide AED registry.

"An AED promptly used by a person present at the cardiac arrest site before the emergency medical services arrive can have a significant impact on the chances of survival," said Dr Hansen. "Naturally, public AEDs are of no value if they are never actually used during cardiac arrests."

He continued: "In cases of out-of-hospital cardiac arrest, defibrillation by bystanders has remained low despite widespread dissemination of AEDs. Usage of AEDs is highly dependent on: AEDs being available near the cardiac arrest site; the nearby AED being easily accessible at the time of cardiac arrest; and bystanders present at the cardiac arrest site being able to locate and use a nearby AED."

Between 2007 and 2012 the number of registered AEDs in a nationwide AED registry in Denmark increased from 141 to 7 800. Of these, 17.5% were available near residential areas.This was accompanied by education

for Danish citizens on how to perform CPR. In addition, the nationwide AED registry was linked to emergency medical dispatch centres so that bystanders to a cardiac arrest could be told where the nearest AED was.

The current study investigated whether the increase in AEDs and accompanying initiatives resulted in more cardiac arrest patients being defibrillated by bystanders. The study included 25 287 patients who had a first time out-of-hospital cardiac arrest between 2001 and 2012. Of these, 74% occurred at home and 26% occurred in a public location.

The researchers found that the rate of defibrillation by bystanders for patients with out-of-hospital cardiac arrests increased from 1.4% in 2001 to 11.9% in 2012 in public locations. The major increase occurred in the second half of the study period, from 2.1% in 2008 to the 11.9% 2012. During the 12 year period there was no increase in bystander defibrillation of cardiac arrest patients at home and rates remained low at about 1%.

"Although our study design does not allow interpretation of the effect of each national initiative, it is encouraging to see the increase in bystander defibrillation in public locations following the combined initiatives," said Dr Hansen. "However, the study does point to the need for ways to increase bystander defibrillation in residential locations as most out-of-hospital cardiac arrests actually occur at home."

The researchers also found that survival of cardiac arrest patients who had been defibrillated by a bystander increased from below 10% in 2001 to about 55% in 2012 in public locations. In residential locations, survival following bystander defibrillation increased from close to none to about 25% in 2012.

Dr Hansen said: "Survival rates from cardiac arrest after bystander defibrillation can be as high in general public locations as it is in selected

locations, such as airports and casinos, where AEDs are easily accessible. However, our study shows that bystander defibrillation does not guarantee high survival as it was low at the beginning of the study."

He concluded: "Many factors are important for increasing survival even when the patient has been defibrillated by bystanders including bystander CPR, improved pre-hospital organisation, and advanced care in hospitals. Continuing efforts are needed to improve bystander defibrillation and increase survival."

Provided by European Society of Cardiology

Citation: Efforts to improve AED usage increase bystander defibrillation in public but not at home (2015, August 30) retrieved 26 April 2024 from https://medicalxpress.com/news/2015-08-efforts-aed-usage-bystander-defibrillation.html