

Letter to the Editor

Bystander cardiopulmonary resuscitation in out of hospital cardiac arrest: need of the hour

Sir,

An out of hospital cardiac arrest (OHCA) is defined as cessation of cardiac mechanical activity, confirmed by the absence of signs of circulation and that which occurs outside the hospital setting.¹ About 70-85% of these events have a cardiac cause.¹ Published literature identifies Acute coronary syndrome (ACS) as the most frequent cause of OHCA, particularly among elderly and coronary vasospasm as a considerable cause among young healthy individuals.² It can also occur from non-cardiac causes such as trauma, drowning, drug overdose, asphyxia, electrocution and primary respiratory arrests.³

OHCA is a major public health problem because though the process is potentially reversible, the probability of recovery is small. Every year, more than 300,000 individuals experience an OHCA in the United States.¹ Nearly 88% of the cardiac arrests occur at home.⁴ The survival rate varies between 6.7% and 8.4% and this statistic has remained unchanged for nearly three decades.^{1,3} Reliable statistics are lacking in most developing countries.

Early cardiopulmonary resuscitation (CPR), therapeutic hypothermia and early advanced care have a crucial role in management of OHCA. Every minute lost in initiating CPR leads to 10% decrease in survival rates of the victim.⁵ Since members of the community are the first to witness OHCA, there is an increasing recognition of the need to coordinate with the community in providing emergency medical care to optimize patient survival after an OHCA. American Heart Association (AHA) guidelines for cardiopulmonary resuscitation and emergency cardiovascular care describes a “chain of survival” to reduce mortality and improve survival. The “chain of survival” comprises of five elements, namely, immediate recognition and rapid access, rapid CPR, rapid defibrillation, effective advanced care and integrated post cardiac arrest care.⁶ The chain of survival should be initiated as soon as possible for effective outcomes.⁶ In developing countries with low resource settings, the early initiation of chain of survival could best be achieved by training the community in early identification and initiation of CPR for effective outcomes. Bystander assisted CPR is the real need of the hour.

Bystander CPR is a concept, rapidly gaining approval in many parts of the world. Bystander initiated basic life support can increase survival chances by 2-3 times.⁷ The lesser the interval between collapse to bystander CPR, the more favourable is the outcome.^{8,9} Wissenberg et al examined the temporal trends in bystander CPR rates and the survival outcomes between 2001 to 2010 in Denmark during which period various national initiatives were launched to improve bystander resuscitation rates and advanced care. There was a considerable increase in bystander CPR rates from 22.1% (2001) to 44.9% (2010) and the increase in bystander CPR rates was significantly associated with survival on arrival at hospital, 30-day survival and 1-year survival in OHCA patients.¹⁰

CPR is generally considered a skill to be acquired by doctors and other health care staff involved in active patient care. Various studies in India and across the world show poor knowledge of resuscitation among health care staff.¹¹ The awareness among common people is even lesser. Nielsen et al reported that fear of harming the patient further, fear of inadequate knowledge about the technique, fear of liability and concerns about transmission of infectious diseases by mouth-mouth ventilation were the commonest reasons for reluctance to act when faced with OHCA.⁷

It is necessary that CPR knowledge and adequate training be imparted to the common man. This is even more important in developing and underdeveloped countries with inadequate human and material health care re-

sources. In such a scenario, bystander CPR would play an effective role in saving the patient through the golden hour. In adult OHCA, bystanders performing chest compression only CPR is considered to be as effective as conventional CPR. Compression only CPR can be easily performed even by non trained bystanders.¹²

Registries should be maintained to record all occurrences of OHCA, identify the neighbourhood characteristics of the affected and measures taken by bystanders. All hospitals and practitioners should be encouraged to notify cases of OHCA to a common database. Telephone based emergency medical services should provide a dispatcher service to advice the bystander in initiating CPR. School based training on basic life services including CPR is a useful step in promotion of bystander CPR. Web based interactive applications have been found to be useful in mapping and application of CPR with assistance. In the era of communication revolution, smart phone user friendly applications should be developed. Widespread media campaigns and health education programmes can increase the rate of early identification of OHCA and improve willingness and confidence among public to perform CPR. Professional organisations should actively be engaged in organising training programmes for public and refresher programmes for health professionals.

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