

## Move Forward to Save a Life: A Review Article on Cardiopulmonary Resuscitation

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### Abstract

*Imagine walking on the road and suddenly seeing a passerby suffering from chest pain and collapsing. Would you be able to give a life-saving cardiopulmonary resuscitations CPR? The answer would be most likely; no people should continue to jump in quickly to give CPR, using breaths if they've been trained. In case of sudden cardiac arrest, the mortality is very high almost 90 percentage or more is not resuscitated within 10 minutes. A quick action, proper training, use of technology and coordinated efforts can increase survival from cardiac arrest. Survival depends on immediate CPR and other actions that starting with bystanders.*

**Keywords:** Cardiopulmonary resuscitation, cardiac arrest

### CARDIAC ARREST AND CPR KNOWLEDGE

The experts noted that most people fail to identify when a person is suffering cardiac arrest. A person suffering cardiac arrest will show the following symptoms: pain in the chest, palpitations or shortness of breath, collapse due to loss of consciousness and most critical, no detectable pulse. The last two are very easy to detect and are almost clear signs of cardiac arrest, Arora emphasized. When you see a person faint or become unconscious gasping for breath, the first thing is to check the pulse or heartbeat. A person suffering from sudden cardiac arrest has only seconds to survive. The next step is to call emergency medical service immediately and simultaneously should begin performing CPR [1].

At the same time, proper heart examination should be made part of routine health checkup among the people in the country. People get heart check-ups like ECG and angiographies done only when they face problems like chest pain or any other symptom of heart attack or

cardiac arrest. One should never ignore unexplained weakness, tiredness, first onset chest burning or first onset breathlessness after the age of 40. Those with strong family history of heart disease should get themselves screened every 6 months at least [1].

### CARDIAC ARREST REUSCITATION OUTCOME [CARO]

Krishnan, et al published a CARO study in North India [2]. They said that out of hospital cardiac arrest (OHCA) is one of the leading cause of death in India. There are very few studies in India, on the outcome after cardiopulmonary resuscitation (CPR) in patients with OHCA. However, due to lack of pre-medical emergency service system (EMS), lack of EMS protocols, limited medical resources and equipment, inadequate infrastructure, lack of emergency medical personnel training, lack of knowledge and skills of CPR among bystanders and in the community; the outcome of OHCA in India are poor, as compared to western countries, where EMS systems are an integral part of the health care system,

which routinely provides CPR to every victim of cardiac arrest [3].

They conducted a study at Department of Emergency Medicine of a multispecialty urban hospitals. They took 126 cases out of hospital cardiac arrest, in that 26 cases were excluded and 80 cases were identified for the study. The population was predominantly composed of elderly individuals with highest percentage of OHCA seen between 51 to 60 years. About 70% of the patients were males and 30% were female. Out of 80 patients, 74 (92.5%) experienced OHCA at residence and only 6 (8.1%) had OHCA at other locations. Totally 46 (56.5%) of OHCA were witnessed, out of which 15.2% patients survived; whereas 42.5% were unwitnessed, of which none of them survived. Although, 46 (56.5%) of OHCA events were witnessed by a bystander, only 1 (1.3%) of these arrests received bystander CPR. Overall, successful resuscitation (ROSC) was achieved in 26 (32.5%) patients, however only 7 (8.8%) were discharged alive from the hospital and the rest 19 (23.7%) expired after hospital admission. The study has shown that the survival rate to hospital admission was 32.5%, and the overall survival rate to hospital discharge was 8.8% and survival to hospital discharge with good cerebral performance was 3.8% One of the major cause of low survival rates for an OHCA event is due to lack of EMS which is an essential part of the overall healthcare system [4]. In spite of having a centralized number “102” and a nationwide expansion, it failed to gain the acceptance equal to western EMS. [5, 6]. They concluded that there was a good outcome after CPR in OHCA with witnessed arrests, early initiation of CPR by bystanders, CPR duration  $\leq 20$  minutes. They suggested to improve the outcome of CPR and the low survival rates after an OHCA event in India, focused strategies should be designed to create a centralized

medical emergency body which could provide guidelines for setting up emergency medical system (EMS), preparing emergency protocols, imparting technical assistant and training.

### **PATHETIC STATE OF INDIA**

**A survey conducted by Lybrate, an online doctor consultation platform says that 98% of the Indian country population was not trained in Cardio Pulmonary Resuscitation.**

The pan India survey shows that less than 2% of the 1,00,000 surveyed agreed to be knowing the technique, while only 0.01% performed it in case of emergency. Countries like United States, Europe, Japan and Singapore has mandated hands only CPR in the school curriculum but in India those policies are still far away. We are lacking in our understanding of the procedure and importance to save a life in time. This survey is an awake up call and demand urgent training for all people in simple life saving technique and take it more seriously on policy level in our system [6].

### **MOVE FORWARD**

The need of the hour is to make CPR training a must in schools and colleges and even at community level, as it can triple a patient's chance of survival, if performed in the first few minutes of cardiac arrest, health experts said. CPR consists of using chest compressions and artificial ventilation to maintain circulatory flow and oxygenation during cardiac arrests and is the cost effective way to improve survival. The American Heart Association (AHA) defines CPR as an emergency procedure to restore spontaneous blood circulation and breathing in a patient and especially, if performed immediately, it can double or triple a cardiac arrest patient's chance of survival. [1]

The AHA recommends uninterrupted chest compression (100 chest compressions in a minute) to the patient until para-medical

support is given, which helps in supplying oxygenated blood to the brain and preventing death.

Bystander CPR, and AED (automated defibrillators), are very useful in saving lives," Bhalla said. "The use of AED; it is used to diagnose life-threatening arrhythmias or irregularity of heart rhythm; it can also be used to treat a dying heart by using electric shock to revive the heart's rhythm," Vanita Arora of Max Super Specialty Hospital, Saket, New Delhi, told IANS. The AED device is easy to use, and with some basic training, it can easily be operated by a layman. However, it is not available at most places, unfortunately. An AED machine should be there at every place where there's a fire extinguisher. That's how important a role it can play in saving lives," Arora noted [1].

### CONCLUSION

Untrained bystanders should call 201 and provide Hands-Only CPR, or CPR without breaths, pushing hard and fast in the center of the chest to the rate of 100-120 compressions per minute. However, if the bystander is trained in CPR and can perform breaths, he or she should add breaths in a 30:2 compressions-to-breaths ratio. [2]. It is mandatory to teach CPR to all students, office-goers, security personal and almost every citizen of the country. We need heart and soul to work together to change the attitude towards performing CPR. Unless we move forward, to save a life will be in pen and paper only. Let's perform CPR and save many lives.

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