

ORIGINAL ARTICLE

Efficiency and outcome of cardiopulmonary resuscitation

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ABSTRACT:

Background: Cardiopulmonary resuscitation is a lifesaving intervention and the cornerstone of resuscitation from cardiac arrest. The present study was conducted to assess the efficiency and outcome of cardiopulmonary resuscitation. **Materials & Methods:** 180 cases of cardiopulmonary resuscitation of both genders were enrolled and advanced cardiac life support (ACLS) techniques were used to survive the patient. Those survived were recalled regularly for 1 year for follow up. **Results:** Out of 180 cases, males were 100 and females were 80. Out of 180 cases, 20 occurred in emergency room, 90 in ICU, 15 in special ward, 35 in general ward and 20 in diagnostic ward and arrests were restored in 20, 60, 13, 30 and 18 cases respectively. Out of this, 18, 55, 11, 28 and 15 survived till 1 year follow up respectively. The difference was significant ($P < 0.05$). **Conclusion:** Maximum survival was observed after cardiopulmonary resuscitation and at 1 year follow up. The best way to improve survival rate after cardiac arrests is to impart regular training and updates in CPR. **Key words:** Advanced cardiac life support, Cardiopulmonary resuscitation, Children

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INTRODUCTION

Cardiopulmonary resuscitation (CPR) is a lifesaving intervention and the cornerstone of resuscitation from cardiac arrest.¹ Survival from cardiac arrest depends on early recognition of the event and immediate activation of the emergency response system, but equally critical is the quality of CPR delivered.¹ Both animal and clinical studies demonstrate that the quality of CPR during resuscitation has a significant impact on survival and contributes to the wide variability of survival noted between and within systems of care.³ CPR is inherently inefficient; it provides only 10% to 30% of normal blood flow to the heart and 30% to 40% of normal blood flow to the brain even when delivered according to guidelines. This inefficiency highlights the need for trained rescuers to deliver the highest-quality CPR possible.⁴ Poor-quality CPR should be considered a preventable harm. In healthcare environments, variability in clinician performance has affected the ability to reduce healthcare-associated complications, and a

standardized approach has been advocated to improve outcomes and reduce preventable harms.⁵ The use of a systematic continuous quality improvement (CQI) approach has been shown to optimize outcomes in a number of urgent healthcare conditions.⁶ The present study was conducted to assess the efficiency and outcome of cardiopulmonary resuscitation.

MATERIALS & METHODS

The present study comprised of 180 cases of cardiopulmonary resuscitation of both genders. A written consent was obtained from family members of all cases.

Data of cases such as name, age, gender etc. was recorded. Advanced cardiac life support (ACLS) techniques were used to survive the patient. Those survived were recalled regularly for 1 year for follow up. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I: Distribution of cases

Total- 180		
Gender	Males	Females
Number	100	80

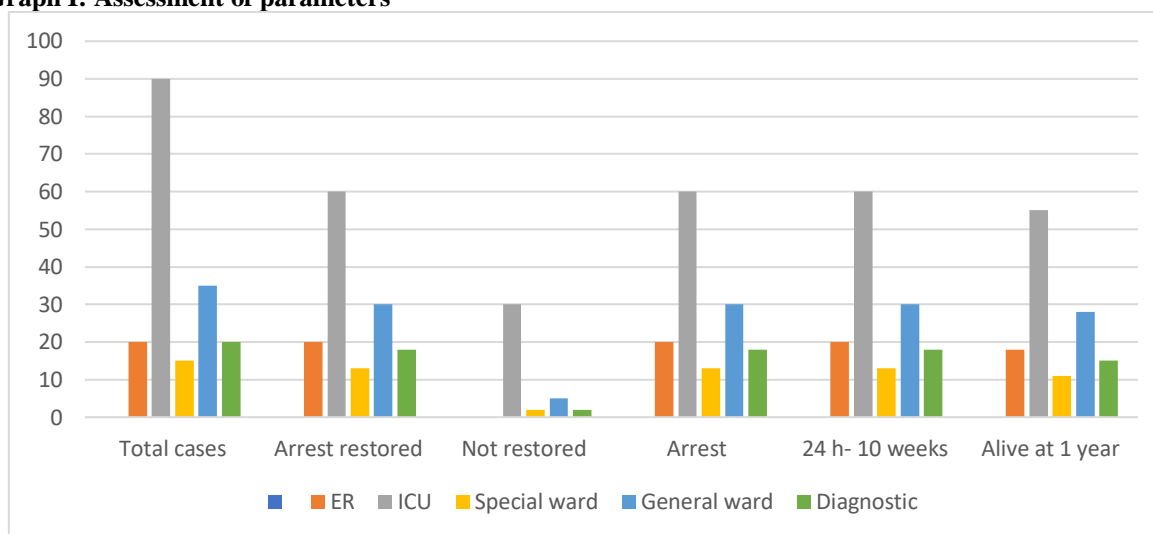
Table I shows that out of 180 cases, males were 100 and females were 80.

Table II: Assessment of parameters

Area	Total cases	Arrest restored	Not restored	Arrest to 24	24 h- 10 weeks	Alive at 1 year	P value
ER	20	20	0	20	20	18	0.05
ICU	90	60	30	60	60	55	
Special ward	15	13	2	13	13	11	
General ward	35	30	5	30	30	28	
Diagnostic	20	18	2	18	18	15	

Table II, graph I shows that out of 180 cases, 20 occurred in emergency room, 90 in ICU, 15 in special ward, 35 in general ward and 20 in diagnostic ward and arrests were restored in 20, 60, 13, 30 and 18 cases respectively. Out of this, 18, 55, 11, 28 and 15 survived till 1 year follow up respectively. The difference was significant (P< 0.05).

Graph I: Assessment of parameters



DISCUSSION

Worldwide, there are >135 million cardiovascular deaths each year, and the prevalence of coronary heart disease is increasing. Globally, the incidence of out-of-hospital cardiac arrest ranges from 20 to 140 per 100 000 people, and survival ranges from 2% to 11%.⁷ In the United States, >500 000 children and adults experience a cardiac arrest, and <15% survive. This establishes cardiac arrest as one of the most lethal public health problems in the United States, claiming more lives than colorectal cancer, breast cancer, prostate cancer, influenza, pneumonia, auto accidents, HIV, firearms, and house fires combined.⁸ Despite this evidence, few healthcare organizations apply these techniques to cardiac arrest by consistently monitoring CPR quality and outcomes.⁹ As a result, there remains an unacceptable disparity in the quality of resuscitation care delivered, as well as the presence of significant opportunities to save more lives.¹⁰ Visual observation provides qualitative information about depth and rate of chest compressions, as well as rate and tidal volume of ventilations.¹¹ The present study was conducted to assess the efficiency and outcome of cardiopulmonary resuscitation.

We found that out of 180 cases, males were 100 and females were 80. Boyde et al¹² in their study CPR outcome analysis was done. They have reported

survival to discharge improvement from 25% to 36%. Of course, both the results of survival to discharge are much higher than our results (10.38%). The authors stated that they were not sure whether the change in guidelines has improved survival to discharge rate, or the intense training programme has made a difference. They stated that the limiting factor for their study was that they did not follow the survived patients for 1-year.

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Rudiger et al¹⁴ in their study a CPR outcome analysis was done. They have reported survival to discharge improvement from 25% (before ARC 2006 guidelines implementation) to 36% (after ARC 2006 guideline implementation). Of course, both the results of survival to discharge are much higher than our results (10.38%). The authors stated that they were not sure whether the change in guidelines has improved

survival to discharge rate, or the intense training programme has made a difference. They stated that the limiting factor for their study was that they did not follow the survived patients for 1-year.

CONCLUSION

Authors found that maximum survival after CPR and at 1 year follow up. The best way to improve survival rate after cardiac arrests is to impart regular training and updates in CPR.

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