

Recent advances in cardiopulmonary resuscitation

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Cardiac diseases are a leading cause of death in the developed and many developing countries. Many mortalities from cardiac diseases take the form of unexpected cardiac arrest. Together with the associated high fatality rate and social cost, cardiac arrests are a significant medical and public health issue. Despite years of efforts and advance in the cardiopulmonary resuscitation, the outcomes of most communities remains dismal. Efforts have been placed to improve the outcomes of cardiac arrests through system design, pharmacological intervention, device modification, and many other innovations.

The International Liaison Committee on Resuscitation (ILCOR) published in 2005 the new guidelines on cardiopulmonary resuscitation, which summarized evidence accumulated over the past 5 years in the area of resuscitation science.

In the area of basic life support, strong recommendations are placed on the delivery of early, and high-quality CPR. Changes are made and streamlined so that early and effective CPR could be available for victims of cardiac arrests. The practice of chest compression, ventilation and compression-ventilation ratios are revised. Delay in CPR delivery were minimized via change in the strategy of defibrillation and emphasis on the sequence of CPR resumption and circulation check. With the advent of biphasic defibrillators, the number of defibrillation and associated delay and injury was minimized.

In the area of advance life support, emphasis were placed on the integration of CPR, ventilation, defibrillation and advance life support measures. Although drugs are yet to have a supportive evidence base in human resuscitation, some lessons can be learned from the animal literature. The importance and benefits from good post-resuscitation practice are validated. This should be better managed with a coordinated approach involving cardiological assessment, haemodynamic support, therapeutic hypothermia and blood glucose control.

Areas needing more deliberation and remain promising in the area of CPR include the effectiveness of various CPR devices and modalities to monitor and predict outcomes of CPR practice.