

SHORT COMMUNICATION

CARDIOPULMONARY RESUSCITATION : THE SHORT COMINGS IN MALAYSIA

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This short review explores the current status of cardiopulmonary resuscitation in Malaysia and highlights some of the factors that have a negative impact on its rate of success. Absence of a unifying body such as a national resuscitation council results in non-uniformity in the practice and teaching of cardiopulmonary resuscitation. In the out-of-hospital setting, there is the lack of basic skills and knowledge in performing bystander cardiopulmonary resuscitation as well as using an automated external defibrillator among the Malaysian public. The ambulance response time is also a significant negative factor. In the in-hospital setting, often times, resuscitation is first attended by junior doctors or nurses lacking in the skill and experience needed. Resuscitation trolleys were often inadequately equipped.

Key words : Cardiopulmonary resuscitation, defibrillation, chain of survival, out-of-hospital CPR, in-hospital CPR, Malaysia

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Modern cardiopulmonary resuscitation (CPR) is, without a shadow of doubt, closely linked with the name of Peter Safar (1924-2003). The enormity of his contributions since the 1950s, including his landmark paper of mouth-to-mouth ventilation (1), earned him titles such as “Father of Modern Resuscitation” (2) and “Father of CPR” (3, 4). About the same time (around 1960s), Kouwenhoven, together with his colleagues Knickerbocker and Jude, were experimenting with defibrillation and rediscovered the efficacy of external chest compression to produce a passable circulation, first in canine models, then in humans (1, 2).

Ever since then, the technique of resuscitation is progressively improving. The American Heart Association (AHA) has since made various recommendations on CPR and emergency cardiovascular care (ECC) and the European Resuscitation Council (ERC) has also produced its own resuscitation guidelines. In many countries like the United Kingdom, Australia, New Zealand, Malta, Southern Africa and Serbia and Montenegro, there are respective national resuscitation councils that serve as an integration body to coordinate the teaching and practice of resuscitation. Unfortunately

at the present moment, there is no such resuscitation council in Malaysia to serve as a unifying body to promote the excellence and consistency of resuscitation teaching and practice for the whole of Malaysia.

The lack of a national resuscitation council in Malaysia also results in a great variation of syllabus and teaching contents of basic life support for the public and advanced life support for trained healthcare providers. This great variation is due to the fact that there are various agencies in Malaysia that are conducting basic life support courses such as Hospital Universiti Sains Malaysia, the Malaysian Association of Emergency Medicine (MAEM), National Heart Institute, Hospital Universiti Kebangsaan Malaysia, Hospital Kuala Lumpur, the Malaysian Society of Trauma and Emergency Medicine (MASTEM), the St. John Ambulance Malaysia and the Red Crescent Society Malaysia (5). This is compounded by the fact that there are agencies which are using outdated guidelines and not the guidelines produced in 2005.

Cardiac arrests can be divided into out-of-hospital cardiac arrests or in-hospital cardiac arrests (6). This distinction is important because the chance

of survival of out-of-hospital cardiac arrest is dependent on the prompt initiation of sequentially linked actions known as the chain of survival (7).

The links in this chain are early recognition of signs of cardiac arrest, early activation of emergency medical services (EMS), early initiation of basic cardiopulmonary resuscitation, early defibrillation and early initiation of advanced cardiac life support (7). The first three chains in an out-of-hospital setting depend very much on the initiation of bystanders to call and activate the emergency medical services, to start CPR while awaiting the arrival of the ambulance and to be able to competently use the automated external defibrillator (AED) to analyse and start defibrillation if necessary. Every chain is important and weakness in any link would lessen the chance of survival of out-of-hospital cardiac arrests (7).

Early access to the EMS is extremely important, more so in a case of suspected acute coronary event or stroke. Unfortunately until recently, there was no universal access number for the Malaysian public to activate the EMS. Previously Civil Defence Department Malaysia had '991' as their access number; the Fire and Rescue Department had '994', but the Emergency Medical Services in Malaysia did not have a universal access number. Different healthcare agencies were using different communication system resulting in the lack of inter-agencies communication and at times, overlapping of resources with more resources available at the site of incident than was actually needed.

Realising these nagging problems, the government has recently re-introduced a single emergency number for the entire nation for all types of emergencies regardless of whether it is health related or non-health related. This project is called "One Nation, One Number" (8). From July 2007 onwards, Malaysian public need only to call the number 999. This single '999' entry point will be answered by a trained telephone operator, who will direct the call to either the fire and rescue, the police or the nearest appropriate hospital depending on the type of emergencies. Nevertheless, how effective this new system will be is yet to be seen at this time. Furthermore, the emergency access number in Malaysia has always been plagued with prank calls in up to 98-99% of all calls (8, 9). These prank calls have contributed adversely to wastage of resources as well as hindering the speedy and effective delivery of EMS to those who are in true medical emergency conditions.

Besides that, the Malaysian public too, are not well educated in communicating essential and correct information to the call centre operator. Often, the exact locations of the incidents are not easily found.

In addition, there are various problems in the area of pre-hospital care in Malaysia that hamper the delivery of rapid and effective emergency medical services to a cardiac arrest victim. The mean ambulance response time in Malaysia, varies from places to places; in Kota Bharu, for example it is about 15.2 minutes and in Kuala Lumpur, it is about 21.1 minutes (10). The mean ambulance response time is the time taken from the time of call received to the time of arrival at the scene (10). In both examples quoted above, however, it is far longer than the critical first five minutes where the chance of survival of a cardiac arrest victim is the greatest (11). The long ambulance response time, besides due to the problem of poor communication, is also compounded by problems of traffic congestion on major roads in big cities in Malaysia (10). In other words, the chance of survival of a cardiac arrest victim during these critical first few minutes before the arrival of ambulance depends very much on the proficiency of the Malaysian public to perform bystander CPR.

The Malaysian public needs to be taught the importance of prompt, proper bystander CPR and the importance of placing AEDs in strategic places as well as proper use of the AEDs. This is illustrated in the tragic death of the late Malaysian actor Hani Mohsin, the host of a popular television game show, who complained of sudden chest pain while waiting for his flight at the Low Cost Carrier Terminal before he collapsed (12). This was a typical example where effective CPR and the use of AED could have been extremely vital. He was rushed to a nearby hospital where he was pronounced dead. The better way should be to rush the "hospital" to him, namely to rush the AED and the resuscitation bags with the essential drugs and airway equipments to the scene.

As for in-hospital cardiac arrest, there are still not many studies done in Malaysia. Suffice to say, the majority of the cardiac arrest cases that occur in the wards would first be attended by the house officers or the junior medical officers. These junior doctors often lack the experience and skill needed in resuscitation. They would then call the senior doctors or specialists for help. Often the time taken by these senior doctors to arrive is substantially longer than the crucial initial first few minutes for the patient's survival.

A study done in 1997 to look into the outcomes of CPR performed in six Malaysian district hospitals found that up to almost 60% of cases were inadequately resuscitated (14). Many reasons were cited, including staff nurses who failed to initiate chest compression and to provide positive pressure ventilation through bag-valve-mask, inadequate duration of resuscitation as well as incomplete resuscitation trolleys (14).

In short, much is needed to be done in the area of cardiopulmonary resuscitation in Malaysia. Firstly, there is a need for a coordination body, much like a national resuscitation council that can serve as a platform for discussion and training of the various governmental and non-governmental agencies involved in this area. The public needs to be educated regarding the importance and the skill to perform timely and effective CPR as well as the use of an AED. The public needs to be educated regarding the proper ways of conveying vital information when calling for ambulance. There is also a need to educate the public regarding the proper use of the emergency numbers and the complications of playing prank calls. Lastly, there is a great need to update the knowledge and skills of staff nurses and junior doctors in performing CPR.

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