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Professional Practice

CARDIOPULMONARY RESUSCITATION – WOULD *YOU* DO IT?

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The use of cardiopulmonary resuscitation or CPR as it is better known, as a means of prolonging life in a pulseless and non-breathing person, has almost universally been accepted as sacrosanct in the practice of medicine. Mouth-to-mouth ventilation was first recommended by the National Research Council of USA in 1957 [1] and the first reported out-of-hospital resuscitation took place in 1960.[1] It has been reported that survival rates and hospital discharge of up to 43% can be achieved when CPR is started within 3 to 4 minutes.[1] Also, the combination of CPR with immediate on-site defibrillation may achieve survival rates as great as 70%.[1] In Malaysia, CPR is taught to medical personnel, trainees, first-aiders, lifeguards and the police as well as the navy. The Malaysian Clinical Practice Guidelines on Acute Myocardial Infarction (AMI)[2] strongly urged the teaching of CPR to the general public. The authors wrote "About 30% of deaths due to AMI occur within the first hour; 60% of deaths occur outside the hospital. Thus the general public and the family of patients with CHD should learn cardiopulmonary resuscitation and basic life support."

Yet practice may be very far from what is advocated. In the middle of this year, my husband and I drove to an a five-star hotel in Kuala Lumpur to pick up a friend and his family for dinner. He waited in the car whilst I ran in to wait for them. I noticed a large crowd in the lobby café surrounding a prostrate man. My medical training clicked and I quickly established that he was not breathing and pulseless.

The people standing around told me that the ambulance had been called for and that he had simply collapsed ten minutes before whilst walking. No one had started CPR! There were not even hotel personnel around to help. I proceeded to carry out mouth-to-mouth resuscitation (MMR) and external chest compression. A bystander handed me a handkerchief which he advised me to use over the mouth. I simply used it to wipe the collapsed man's mouth and continued. Five minutes later, another man approached and identified himself as a doctor. We proceeded to do two-rescuer CPR. This continued satisfactorily for a while until, exhausted, I asked him to change and take over MMR. He was obviously reluctant although he did change with me. He then covered the victim's mouth with a handkerchief and tried to blow through the cloth. Respiration was unsuccessful as evidenced by the absence of chest rising. This continued for a while making me anxious. I was ready to take over MMR again when the ambulance arrived.

Several issues relating to this case disturbed me as a health worker. First, no one had attempted CPR in the first ten minutes. Not a single person in the large crowd had tried to resuscitate the collapsed man. This was worrying as the first few minutes after collapse are the most crucial. The American Heart Association states, "A first responder must be willing to act without hesitation".[1] Furthermore, it was apparent that there was no preparation by the hotel to prepare its workers for such an emergency. Thirdly, the hesitation by the second doctor on the scene was disturbing. It was apparent that infection was the danger he was worried about. This fear of catching an infectious disease had affected the efficacy of his resuscitation method.

Undoubtedly, the fear of catching an infectious disease is paramount in the minds of any health worker when confronted with a similar situation. This is the era of AIDS and SARS. Indeed, I immediately proceeded to wash my mouth several times after the resuscitation. However, is this fear real or imagined?

The World Health Organisation's stand is that "mouth-to-mouth resuscitation is a life-saving procedure and should not be withheld through fear of contracting HIV or other infections."[3] A review by Mejicano and Maki[1] noted that, as of 1998, only 15 cases of transmission of infection through saliva had been documented and that the majority involved a bacterial pathogen. Examples of bacterial pathogens that have been reported include *Neisseria meningitidis*, *Mycobacterium tuberculosis*, *Shigella sonnei* and *Salmonella infantis.* The review stated that there was no reported transmission of HIV, hepatitis B, hepatitis C or cytomegalovirus by mouth-to-mouth ventilation[1]. The risk for acquiring HIV infection during MMR has been estimated to be less than 1 in a million[4]. This estimate may be perceived to be too high by some health care workers.

Several studies have shown the reluctance of health care workers in carrying out MMR.[5-8] Brenner *et al* have carried out surveys asking health care workers what they would do in six cardiac arrest situations. In one of the studies,[5] they found that many physicians were reluctant to perform MMR resulting in marked delays in the ventilation of apnoiec patients. In another study,[6] 45% of physicians and 80% of nurses would not do MMR on a stranger; only 15% would perform CPR on a stranger in a gay neighbourhood. All stated that their reason was fear of contracting communicable diseases especially HIV. Over half of all Emergency Medical Technicians (EMTs) and all paramedics surveyed [8] said they would not perform MMR on an adult stranger. More worrying was that 29% of the paramedics and EMTs had been in situations requiring MMR in the community and 40% had either walked away or did only external compressions. Of those who had performed MMR, only 45% would do so again.

What would the results show if similar surveys were taken amongst our own health personnel? Perhaps the results would show less reluctance to perform CPR if we all took precautions beforehand to prepare for such situations. These would include:

- Proper CPR training – including training with the use of mouth-to-mask devices.
- Hepatitis B immunisation.
- Buy and carry personal mouth-to-mask device with one-way valve. These are now available in convenient portable forms.
- Post-exposure prophylaxis – if there is a possibility of biohazard exposure (blood or open sore in patient's mouth or sharp injury incurred during resuscitation attempt), then proper post-exposure protocol should be followed and the need for prophylaxis assessed.
- Chest compressions alone in the first few minutes may be enough especially in cases of sudden cardiac arrest. In the past few years, there has been considerable discussion on whether MMR is necessary at all in resuscitation. Chest compression alone has been shown to be effective in the early stages of sudden cardiac arrest and interruptions in compression led to lower coronary perfusion and a decrease in survival rates.[9] However, a review by Berg[10] showed that chest compressions together with MMR were superior to either technique alone. Furthermore, MMR with minimally interrupted chest compressions were more important in arrests that were prolonged and due to asphyxia (as in most paediatric arrests).[11] The American Heart Association therefore concluded that the combination of compressions with ventilation were most likely to provide the best outcome for all victims of cardiac arrest.[12]

I would also recommend that the following measures be applied universally:

- CPR training should emphasize the very low risk of disease transmission. Training in the use of barrier mask should be included.
- Oral barrier devices should be made freely available in hospital and in public areas e.g. hotels, theaters, health clubs and restaurants.

A survey among health personnel in Malaysia conducted in 2005 found that nearly half of the 4989 subjects were either not confident at all or unsure about their ability in giving first-aid and CPR.[13] The investigators however did not look at fear of infection in particular.

The fear of being infected is one that has plagued physicians for centuries. In A.D. 166, Galen fled the city of Rome fearing smallpox. Venice had to pass a law forbidding physicians from fleeing the plague in 1382.[14] In the late 1980s, HIV made "universal precautions" routine and health care workers began questioning rights to decline care to HIV+ patients. In 2003, Dr. Carlo Urbani of WHO died after contracting SARS and there were nurses and physicians who refused to take care of SARS infected patients. Health care workers were confronted with an occupation that had suddenly become hazardous, not only to their health but also possibly to their families. Perhaps in the future, avian influenza, bioterrorism or possibly a new airborne virus may again renew the need for this discussion but as yet, the fear of doing mouth-to-mouth resuscitation appears unfounded.

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Another Celebration of Life (conjugal bliss in a pair of laldybird beetles)
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