First Responder

First Response AUSTRALIA

JULY '06 Newsletter

IN THIS ISSUE:

OXY / AED Kit

$ 4,999.00
(GST Free)

KIT INCLUDES:

* Oxy Resus Soft Pack
* ZOLL AED PLUS DEFIBRILLATOR
* RESQPOD
* All brass multiflow regulator
* Bag Valve Mask Device- disposable - Adult and Child sizes
* LMAs (3 sizes) disposable plus accessories
* Therapy Masks (adult / child)
* Set of 3 Oropharyngeal Airways
* V-Vac Suction Kit with spare cartridge
* Stifneck Select Cervical Collar
* Instructions for Use

Postage and Handling not included

Is poor CPR performance due to poor training????

Many studies has found that poor CPR is commonly performed in resuscitation attempts, both by health professionals and lay persons. A study from New Zealand investigated whether a contributing factor to poor performance was poor initial training. The study looked at the standard 4 hour course used to teach CPR. It found that out of the 4 hours only 22 minutes were spent demonstrating techniques, only 29 minutes were spent practrising CPR and the assessment of adult , child and infant resusucitation took less than 3 minutes. Importantly, in the majority of courses (77%) certifications were granted when CPR was performed incorrectly, with compression techniques being corrected only 56% of the time. Early defibrillation and its importance were discussed in only 56% of the time and only limited information on symptoms of acute coronary syndromes. The study suggested that in light of these observations the current style of teaching may well contribute to the poor performance of actual CPR.

Should lay rescuers only perform chest compressions without breathing

A study recently presented at the 2006 Congress of the European Resuscitation Council in Norway suggests that lay rescuers should only perform chest compressions without rescue breaths during CPR. The results of the study showed that only 17% of participants acheived the required tidal volume (500ml), the avergage time to conduct rescue breaths between compressions was 12 seconds and 13% only acheived a tidal volume of 300mls. The most frequent mistakes noted were excessive ventilation volume acheived by 57%, stomach inflation achieved by 31% and an unopened airway acheived by 24%.

Footnote:

First Response Australia promotes two operator CPR within a workplace instead of one operator (which is notorious for the errors mentioned above). We suggest that compresssion only CPR initially takes place whilst a second operator summons help and obtains a resuscitation mask and utilises the jaw thrust method for ventilations in mouth to mask.

Laryngeal Mask Airways should be standard for First Responders

First Response Australia has been promoting the use of Laryngeal Mask Airways (LMAs) in resuscitation by "First Responders" for the last 18 months. The training has been well received by response groups, some of whom know all to well the difficulties of obtaining patent airways and the problems associated with the failed attempts of ventilations by lay rescuers.

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Once trained, responders appreciate the need and ease of using LMAs but its convincing the management of response personnel that use LMAs should be a skill as needy as the skill of usin g a pocket mask or defibrillator. This resistance is understandable given that the use of LMAs was grouped into the catagory of "advanced life support skills" such as endotracheal intubation (inserting a cuffed tube through the vocal cords to secure an airway). We now know that endotracheal intubation during CPR in a cardiac arrest has detremental efffects on the outcome. But the public would generally see that any procedure used by ambulance services as being "best practice" and when some ambulance services do not even use LMAs or it requires the officer to be 2 or sometimes 4 years trained before being allowed to use the device, we do understand that sometimes our recommendations to incorporate LMAs in "firtst respnse" skills are rejected.

Again a recent study from Finland has shown that inexperienced persons after being shown a 2 minute video on the use of LMAs were able to incredible achieve high success rates in the insertion of a LMA. The study results showed that the medium first attempt took 23 seconds, eventually decreasing to 8 seconds. After a maxium of 30 attempts only 7% of the study group failed to acheive 10 consecutive successful insertions.

Our training results tend to support these success rates but it will be years before we see the LMA becoming the first choice of airway management for ambulance paramedics, so in the meantime lets set "best practice" by giving response groups the right tools to do the job. We all should be aware that if the airway has not been secured and effective resuscitation is not taking place before the paramedics arrive, its all a bit to late!!!

Trainers - are you teaching agonal breathing as a sign of cardiac arrest??

Agonal breathing is present in up to 40% of pre-hospital cardiac arrests and is commonly mistaken for spontaneuos breathing and therefore a sign of circulation. This leads to the ommission or delay of CPR. A recent study looked at hypothesis that specific tuition on agonal breathing during CPR training would improve the ability of providers of CPR to recognise cardic arrest faster and therefore start CPR where appropriate. The study demonstrated that the knowledge of agonal breathing as a sign of cardiac resulted in the greater likelihood of correctly recognising cardiac arrest and the faster initiation of CPR.

Current guidelines use the term "absent" and "abnormal breathing" when describing "check for signs of circulation"

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We wonder how many trainers actually know and understand what agonal breathing is and its importance in training.

\ Some EMS dispatchers now use the callers description of "abnormal breathing" as a sign of now circulation and direct bystanders to commence CPR.

Get the pressure up !!!!!! Part 2.

In our last newsletter we discussed the efficacy of manual CPR and the need to progress towards mechanical devices to increase the Coronary Perfusion Pressure (CPP) when performing CPR. It has now been established that for the heart to beat spontaneously, a CPP greater than 20-25mmHg is required.

Generally the best performed CPR reaches a dismal 15mmHg which makes the chance of a return of spontaneuos circulation (ROSC) highly unlikey, especially in cases where VF is not present.

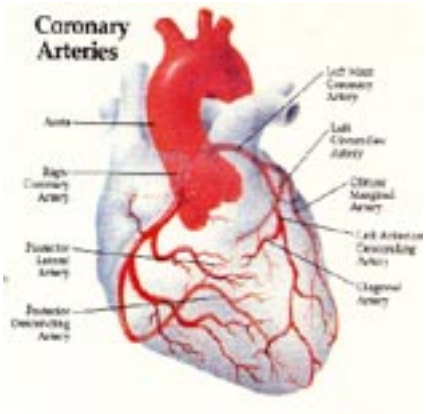

Diagram of heart showing the coronary arteries that are so difficult to perfuse during normal CPR

Part Two: The first of the two devices discussed in Part One of this article is the RESQPOD Circulatory Enhancer (pictured below). The device is placed between a ventilation source (mouth, bag valve mask or manually triggered ventilator) and can be attached to a pocket mask, LMA tube or an ET tube.

The statistics regarding its effect on increasing blood flow are truely amazing. On both animal and large scale human trials it has been shown to deliver over double the blood flow to the coronary arteries and more than triple the blood flow to the brain during CPR

This is achieved by increaseing the negative presssure in the thorax by selectively impeding inspiration during the release phase of chest compresssions. The increase in negative pressure results in a greater vacuum, which pulls more blood back into the chest, providing greater venous return to the heart and therefore greater output with the compression phase subsequently increasing blood flow to the brain. ***This translates to an increase in systolic blood pressure to over a 100mmHg with the RESQPOD from 50mmHg during normal CPR.***

If you recall it is the diastolic phase in which the coronary arteries fill and this diastolic pressure now increases to an amazing 55mmHg

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only less than 17mmHg. Remember we need at least 25mmHg CPP to allow the heart to spontaneuosly function. The data supporting the device claims that a doubling of survival rates in patients in VF when used in conjunction with defibrillation. Having followed the progress of this device for the last 18 months we have no doubt that the statistics will be impresssive.

The second of the two devices discussed in Part One of the article is the AutoPulse, a non invasive cardiac support pump. The makers claim "the promise of normal blood flow during sudden cardiac arrest" and the data definately supports this claim. The device (pictured below) is best described as a short back board which is laid under the patient and an encircling load distributing band fitted over and around the chest. Batteries then power the device which tighten and loosened producing unique and consistant chest compresssions. So, instead of just compressing the sternum the whole chest is compressed which results in never-before-seen levels of perfusion in SCA, increasing the chance of return of spontaneous circulation (ROSC) and neuroligically intact survival. The AutoPulse can be set to continuous compresssions allowing the securing of an airway with a LMA to take place without disasterous interruptions occuring Alternatively the machine can be set to pause after 30 compressions to allows ventilations to be performed in a non protected airway.

In one study the AutoPulse demonstrated a significant increase in CPP compared to the CPP generated from aggressively performed manual CPR. Specifically, the AutoPulse was able to produce a mean CPP above the previously described 15mmHg threshold necessary for ROSC which manual chest compressions did not achieve. For the 16 patients in the study the mean CPP for AutoPulse was 33% higher than manual CPR (20mm Hg vs. 15mm Hg)

Summary

Given the necessity of perfusing the heart well and the difficulty of performing adequate manual CPR, many have sought to develop a mechanical adjunct capable of performing chest compressions. The ideal device, according to experts, must improve haemodynamics and be easy to use.

The RESQPOD and the portable, easy-to-deploy AutoPulse outperforms manual CPR in generating blood circulation to all organs - including the heart. It has been shown to increase CPP in both animals and humans over and above optimally performed manual CPR. Further, it has been shown in animals to produce levels of blood flow that are greater than pre-arrest levels of flow with the use of epinephrine.

The Last Word

That's our newsletter for another month. Without doubt what has been discussed in Part one and two of "Get the Pressure Up" is nothing short of mind boggling. The two devices discussed represent the most important development in the treatment of sudden cardiac arrest in the past 30 years.

First Response Australia is excited and proud to be distributors of these innovative devices and welcome all enquiries.

These innovations really bring home the fact that we generally don't teach CPR well and we've had it wrong for a long time - I just tell everyone now to "push like crazy".

Charles Makray
Managing Director

ZOLL AED Plus

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* Price GST Exempt

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- *Unique one piece electrodes giving compression rate and depth feed back*
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- *5 year lithium batteries - up to 300 shocks when new and more than 40 shocks when up to 3 years old.*
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- *Carry Case*
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