ABC of Resuscitation

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RECOGNISING A CARDIAC ARREST AND PROVIDING BASIC LIFE SUPPORT

The combination of expired air respiration and external chest compression forms the basis of modern basic life support—cardiopulmonary resuscitation.

The term "cardiac arrest" implies a sudden interruption of cardiac output which may be reversible with appropriate treatment (cessation of heart activity as a terminal event in serious illness is thus excluded).

Initial assessment: approach, assess, and establish an airway

Resuscitation is the emergency treatment of any condition in which the brain fails to receive enough oxygen. The basic technique demands first a simple rapid assessment of all patients: the ABC of resuscitation.

At present ABC stands for Airway, Breathing, and Circulation. In 1985, however, the American Heart Association agreed that ABC should stand for Assess, Breathe, and Circulate as this was a more accurate and positive description of what the resuscitator must do.

Rapidly assess the surroundings to eliminate danger to yourself from such things as electricity, gas, falling masonry, or traffic—unless you want to be second victim. Establish whether the patient is conscious by shouting "Are you all right?" and shaking him gently—but do not aggravate any injuries that may have occurred to the neck and ribs; also shout or send for help.

Airway

Once you are certain the casualty is unconscious be sure he has a patent airway and can breathe.

Look for chest movement, *listen* with your cheek close to his mouth for breath sounds, and *feel* expired air on the side of your cheek.

If the casualty is not breathing or has difficulty in breathing there may be an obstruction to the air passages.

Obstruction often occurs because the relaxed tongue falls on to the posterior pharyngeal wall but it is occasionally due to foreign bodies—food, dentures, weeds, etc. If the patient is breathing but unconscious place him in the recovery position and if necessary support his chin to maintain the airway.

In this position the tongue will fall away from the pharyngeal wall and any vomit will dribble out of the corner of the mouth rather than obstruct the airway or, later on, cause aspiration pneumonia.

Treatment of obstructed airway—Establishing and maintaining an airway is the single most useful resuscitative manoeuvre the rescuer can perform. The aim is to extend, not hyperextend, the neck (thus lifting the tongue off the posterior wall of the pharynx), and this is best achieved by lifting the chin forwards with the finger and thumb of one hand while pressing the forehead backwards with the heel of the other hand. If this fails to establish an airway, consider obstruction by foreign body and remove this first by finger sweeps in the mouth if the jaw is relaxed.

If this is not successful try firm blows to the back, which may dislodge a foreign body by compressing what air remains in the lungs and causing an upward force behind the obstructing material.

In the conscious patient the most effective way of removing any obstruction is to gain the victim's confidence and encourage him to cough. This allows the patient to use the muscles in his bronchi together with his chest muscles to produce as much pressure as possible with the air remaining in his lungs. If this fails ask him to lean over a chair and deliver firm blows to the centre of his back, thus calling gravity to your aid as well.

The American Heart Association and American Red Cross Societies will probably recommend abdominal compression (the Heimlich manoeuvre) instead of back blows in their new guidelines for patients with an obstructed airway, but the British delegates present at their review of standards thought that the evidence presented was one sided and insufficient to cause the Resuscitation Council to recommend replacing back blows alternating with finger sweeps.

Breathing

If the patient is not breathing, regardless of the cause, start expired air respiration immediately. Take a deep breath, seal your lips firmly around those of the patient, and (while still maintaining an airway by lifting the jaw with one hand) pinch the nose with the fingers of the other hand (which is already pressing on to the forehead). Breathe out until you see the patient's chest expand and then lift your head away so that the patient can exhale and you can take another breath of air; the chest should rise and fall as you breathe in and out of the patient.

The present recommendations suggest four quick breaths before feeling for a carotid pulse, but four quick breaths might cause gastric distension and inadequate oxygenation, and two breaths one after the other (allowing the chest totally to deflate between each breath) seem more suitable. Then feel for a pulse in the carotid artery. If there is a pulse the patient need only be ventilated with exhaled air resuscitation 12 to 16 times a minute. The patient will often start to breathe for himself and can then be put into the recovery position.

Circulation

If the patient does not have a pulse in a major artery (preferably the carotid but if the neck is injured the pulse may be felt at the femoral artery) then circulation must be established with chest compressions.

After you have given two initial breaths compress the chest (in an adult) by 1½-2 inches (4-5 cm) at a rate of 80 compressions a minute making sure that the downward compressions occupy more than half of the compression-relaxation cycle.

At a rate of 80 per minute there is time to do 15 compressions and pause to give two inflations so that there will be 60 compressions overall each minute at a rate of 15 compressions to two inflations.

The positioning of your hands and shoulders for this technique is important. Feel along the ribs until you come to the xiphi sternum; place two fingers at the base of the xiphi sternum, then place the heel of the other hand above these two fingers on the sternum.

Put your second hand on top of the first hand and align your shoulders above this position with the arms straight. Press down firmly, not allowing your elbows to flex. Moving from the shoulders, compress down and up counting "one and two and three," etc, until you get to 15, when you pause for the two inflations.

It is difficult to teach basic life support by a textbook or even on patients but luckily there are many commercial training aids and manikins available which allow training and practice.

Dangers of resuscitation

Until recently the main concern in resuscitation was for the patient, but attention has recently been directed towards the rescuer, particularly in the light of fears about the transmission of the acquired immune deficiency syndrome. No case of AIDS has been transferred by mouth to mouth resuscitation and it does not seem to behave as a saliva borne disease. Research on AIDS is still in its infancy, however, and doctors will be asked about airway adjuncts. Adequate resuscitation can still be performed if a barrier is used

between the patient and the doctor (such as a pocket face mask or some form of airway). The main requirement of these devices is that they should not hinder an adequate flow of air and not provide too great a dead space. Resuscitation must not be delayed until such a device is at hand.

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