

POLICY NO: M - 005

POLICY: SPECIAL PROBLEMS IN RESUSCITATION OF THE NEAR DROWNED

ORIGINAL POLICY: OCTOBER 1994

LAST REVIEW DATE: OCTOBER 2002

REVIEW DATE: CURRENTLY UNDER REVIEW

1. BACKGROUND

Resuscitation practices vary from country to country and these depend largely on whether the policymakers have a background in cardiology, anaesthesia, or water safety. There are certain very clear differences between resuscitation of the near drowned and resuscitation of a person who has suffered cardiac arrest due to a heart attack. This policy highlights the differences.

2. POLICY

2.1 **DROWNING** by definition is fatal; near drowning is sometimes fatal.

DROWNING is defined as death resulting from suffocation within 24 hours of submersion in a liquid medium.

NEAR DROWNING victims survive for at least 24 hours.

2.2 **POSSIBLE SEQUENCE OF EVENTS IN NEAR DROWNING**

This sequence is hypothetical and will vary according to many factors. Most commonly there is intermittent surfacing and submersion, a violent struggle for survival, vigorous breathing efforts and frequent swallowing. Eventually the face is totally immersed and inhalation efforts may continue briefly. In most but not all victims there is water in the lungs and a great deal of air and water in the stomach. Gross oxygen lack leads to cessation of breathing and some minutes later, cessation of heart beat.

2.3 SPECIAL PROBLEMS INFLUENCING RESCUE AND RESUSCITATION

Handling of victims of near-drowning requires understanding of several particular features.

2.3.1 Swimming ability of the RESCUER

No person should attempt a rescue beyond his swimming ability. Many unnecessary drownings occur each year because people do not follow this rule. The situation is comparable to that of electric shock where the rescuer must be careful to avoid the same fate as the original victim. The rescuer must be fully aware of his own swimming abilities and the particular type of aquatic environment in which the victim is found. A flotation aid should be used whenever possible.

2.3.2 Deep water

If the victim is in deep water more than a short distance from land and appears not to be breathing, Expired Air Resuscitation should be commenced as soon as this assessment has been made. EAR in deep water requires a highly trained rescuer and flotation aid. This will usually be a rescue board or rescue tube. The sooner resuscitation is commenced the better the prognosis.

2.3.3 Duration of resuscitation.

- a. In patients who are not breathing but in whom a pulse is present.
Expired Air Resuscitation may only be required for a matter of minutes or even less.
- b. In those in whom a pulse is absent if CPR is to be successful then success usually occurs early. Late survival is very uncommon and has been recorded only in circumstances of children immersed in very cold water.

2.3.4 Calling for Help

Assistance should be sought at the earliest possible time but performance and continuation of expired air resuscitation take priority. Many near-drowning victims have been saved by 10-20 breaths after which they are placed in the lateral position with continued attention to the airway and breathing.

2.3.5 Early administration of oxygen

Early administration of oxygen is beneficial but resuscitation efforts should not be delayed while waiting for oxygen. Furthermore the use of oxygen equipment requires trained personnel.

2.3.6 Defibrillation

Where cardiac arrest has occurred due to submersion, defibrillation is rarely, if ever, necessary or successful. This is the opposite to cardiac arrest due to cardiac causes, where the object of CPR is to maintain a circulation until a defibrillator is available.

2.3.7 Distension of the stomach

The victim's stomach is frequently distended at the time of rescue and this may be aggravated by faulty or over vigorous attempts at Expired Air Resuscitation.

No attempt should be made to empty the stomach by external pressure.

2.3.8 Vomiting and regurgitation

Vomiting and regurgitation are very frequent following immersion. To minimise the risk of inhalation of stomach contents into the lungs, the victim should be placed on the side for initial assessment. If the victim vomits or regurgitates during resuscitation he should again be promptly turned on the side the airway cleared and if breathing has not recommenced resuscitation should be continued.

2.3.9 Administration of oxygen.

Because the primary abnormality in the near drowned is oxygen lack (hypoxia) the administration of oxygen is of great value and will always improve the prognosis. The use of oxygen, however, requires suitable equipment and suitably trained personnel.

2.3.10 Late deterioration

Quite often, immersion victims deteriorate after apparently successful rescue. Under observation on land, the conscious may become unconscious, breathing may stop and the heart may stop. In such cases, immediate resuscitation is almost always successful. There must be careful observation of all victims of immersion after rescue.

Delayed lung complications following immersion are very common, even in those who appear to be quite well following rescue and resuscitation.

2.3.11 Liquid in the airway

Most victims of drowning have inhaled some water into their lungs. The incidence of inhalation is lower for near-drownings.

The upper airway should be cleared of water and other foreign material. No attempt should be made to drain water from the lungs because water in the lungs is no barrier to successful resuscitation. Attempts to drain water will only waste time. The mouth and upper airway are frequently filled with frothy fluid which should be dealt with in the same way as other foreign material. It

is often necessary to perform artificial ventilation while there is still some froth in the mouth and such resuscitation is often successful.

2.3.12 Fall in body temperature

Many immersion victims are cold. The carotid pulse may be extremely difficult to feel, and the problem may be compounded by a very slow heart rate. Because the rescuer may also be cold, tired and nervous the carotid pulse where possible should be assessed by someone who is not cold and wet. Hypothermia is present in some immersion victims and may protect the brain from the effects of lack of oxygen. Where hypothermia is suspected, resuscitation should be attempted even after prolonged immersion and should be continued until the advanced life support team has confirmed that death is irreversible.

2.4 WHO SHOULD BE SENT TO HOSPITAL ?

- 2.4.1 i. Any victim who lost consciousness even for a brief period.
- ii. Any victim who required Expired Air Resuscitation.
- iii. Any victim who required Cardiopulmonary Resuscitation.
- iv. Any victim in whom a second condition such as heart attack or neck injury is suspected.
- v. Any patient who is hypothermic after initial management.

2.4.2 The decision on less serious cases is more difficult. The advice given International Lifesaving Federation is as follows:

"It is reasonable for a rescuer to allow the victim to return home if, after 10-15 minutes of careful observation while being warmed with blankets or other coverings, the victim has **ALL** of the following:

- i. No cough.
- ii. Normal rate of breathing.
- iii. Normal pulse in strength and rate.
- iv. Normal colour.
- v. No shivering.
- vi. Is fully conscious, awake and alert.

It is unwise for the victim to drive his own vehicle home.

2.4.3 If any of the previous conditions do not apply or if the rescuer has any doubt, then the victim should be advised to seek early medical attention.

2.4.4 There is always a risk of delayed lung complications: All immersion victims should therefore be warned that if they later develop cough, breathlessness, fever or any other worrying symptom they should seek medical advice immediately.

2.4.5 The victim should be under the close observation of a responsible adult for at least 24 hours after the immersion episode.

2.5 ASSOCIATED MEDICAL CONDITIONS

A rescuer must bear in mind the possibility that a person found unconscious in the water may have suffered an illness or injury in the water. In particular, neck injuries, heart attack and epilepsy may occur in the water. This second condition, or the suspicion of it, may alter some aspects of management.