First Aid Management of Aquatic Neck Injuries Policy

Purpose

To outline requirements for First Aid Management of Aquatic Neck Injuries

Scope

All operational levels of Life Saving Victoria

Policy

Introduction

Spinal injuries are common disasters and many of them involve the neck. The remainder are fractures of either the thoracic or lumbar regions.

Almost all aquatic spinal injuries occur in shallow water and involve the neck. Thoracic and lumbar fractures rarely occur in water. Most aquatic spinal injuries could have been prevented.

Most casualties are male with a great predominance of teenagers and men in their early 20’s. Alcohol is a common factor.

Rescue from the water must be effected early as the patient is usually face down and therefore suffocates within minutes. The lucky ones are able to walk from the water, simply complaining of severe neck pain. The unlucky ones will remain permanently quadriplegic.

Water rescue organisations round the world continue to grapple with the issue of how best to conduct preventive programs and how best to handle the patient once the injury has occurred. Prevention is the subject of a separate policy which also provides more detailed statistics.

The International Life Saving Federation Medical Commission discussed rescue techniques in Cardiff in 1994 and conducted trials with the assistance of the director of the spinal unit in that city.
Directors of spinal units in Australia as well as rescue and medical experts from international aquatic organisations have been consulted in the formulation of this policy. The policy has been developed over a period of more than 10 years and the techniques have been extensively trialled both in Australia and overseas.

This policy does not describe the anatomy of the spinal column which is dealt with elsewhere in publications of Surf Life Saving Australia.

**Recognition**

Aquatic neck injuries may occur in a variety of ways so that all lifesavers and persons involved in water safety must have a high index of suspicion.

**The conscious breathing casualty**

The most common presentation is the person who leaves the water and immediately or very soon afterwards complains of a painful neck. In these circumstances, the assumption of spinal injury must be made and the neck immobilised immediately by the most experienced persons on the spot using whatever means are available. There may also be limb symptoms such as pins and needles or weakness.

- Less frequent is the witnessed event in which the patient is seen to dive into shallow water or be dumped in the surf.
- Third is the non-witnessed but highly suspicious circumstance where a person is found floating face down in or near shallow water.
- Least suspicious, but still possible is any person found floating face down in deep water. Each of these must be managed as a potential spinal injury victim.

Spinal injury may involve only the bones, ligaments, etc, or, less frequently and more seriously, the delicate spinal cord itself, producing varying degrees of damage to nerve tissue. However, all spinal injuries must be managed by lifesavers and first aiders according to the same basic rules.

**Policy**

**Principles of Rescue and Treatment**

- First priority is to remove the person’s face from the water while at the same time stabilising the neck in the neutral position. Removal of the patient’s face from the water is clearly the first
step in creating a clear airway, which must then be maintained at all times.

- Breathing must be assessed as quickly as possible and this is done in the usual way. In practice, the presence or absence of breathing will usually be very obvious when the patient's face is no longer covered by water.
- If breathing is absent, rescue should proceed as a normal rescue and resuscitation, taking as much care of the neck as possible. Resuscitation is much more important than a suspected neck injury when the patient is not breathing. The principles of Airway, Breathing and Circulation always take precedence over any suspected injury.
- If breathing is present, the rescuers can usually be unhurried in their rescue. Wave conditions, the possibility of hypothermia, rocks, etc may dictate the need for speed but the lifesavers present will assess all of these factors.
- At all times during rescue, the neck must be kept in the neutral position and the whole of the spine kept in normal alignment. If attempts to place the neck in the neutral position produce or aggravate pain in the conscious person, the neck should be immobilised in the position of comfort for that person. The neck should never be forced into the neutral position, but, if resistance is met, it should be immobilised as is.
- Recruitment of assistance is especially important in the unsupervised environment. Not all spinal injuries occur at patrolled beaches or in guarded pools. Removal of a spinal injury person from the water is very difficult unless there are adequate numbers of persons available to help. The most experienced lifesaver present should assume responsibility.
- Without equipment, removal from the water requires a maximum number of assistants, care and lack of speed to ensure that the neck and the remainder of the spine are kept in position as described above.
- In the surf, removal from the water is described in the current edition of the SLSA Surf Lifesaving Training Manual.
- In still water, the use of a suitable spineboard is recommended and has been standard practice around the world for many decades. The various types of spineboard are not easy to use correctly and special training is required along with annual recertification.
- All patrolling lifesavers must practise the drill for spinal injuries frequently.
- At the earliest opportunity, ambulance or helicopter must be notified.
- The cervical collar (neck brace) was introduced into the management of aquatic neck injuries in Australia in the summer
1992-93 and teaching has proceeded systematically since that time, being restricted to holders of the Advanced Resuscitation Certificate. The cervical collar has been used by overseas lifeguards for rather longer periods on the recommendation of their medical advisers.

- It is therefore the policy of Life Saving Victoria that cervical collars are appropriate adjuncts to the management of aquatic neck injuries provided their use is restricted to those who have been specifically trained in their use.
- The cervical collar is always used as an adjunct to and not a substitute for correct management of immobilisation, airway management and transport. It should not be used in a patient who requires respiratory or cardiac resuscitation.

Full details of the use of the cervical collar are published in the current edition of the SLSA Surf Lifesaving Training Manual and the SLSA Emergency Care Manual.

References

Albin, M.S., Acute cervical spinal injury. Critical Care Clinics, July 1985, 1 (2) p267-84

American Red Cross, Lifeguarding Today, Mosby Lifeline, St Louis, 1994


Green, B.A., Eismont, F.J. & O'Heir, J.T., Spinal cord injury--a systems approach: prevention, emergency medical services, and emergency room management, *Critical Care Clinics*, Jul 1987, 3 (3) p471-93,


The Royal Life Saving Society United Kingdom, *Beach Lifeguarding*, RLSSUK, Studley, 1994

The Royal Life Saving Society Australia Victoria Branch, *Aquatic Spinal Injury Management*, RLSSA, Melbourne, 1993