EMERGENCY CARE FOR ACCIDENT VICTIMS

In almost all developed countries, accidents are responsible for more deaths among people under 45 than any other single cause. This situation has been steadily worsening, and medical science is having to enlist the aid of modern forms of transport and communications in its efforts to reverse the trend. The following article is based on the report of a seminar on the organization of resuscitation and casualty services which was convened by WHO in Leningrad, USSR, from July 3 to 7, 1967.

While advances in medicine are reducing deaths from infectious diseases accidents are becoming more and more frequent and make ever-increasing demands on medical skills and facilities. Motor vehicle accidents, which are responsible for between 25% and 40% of accidental deaths in Europe, present a major challenge to emergency medical services. Many doctors unfortunately, show lack of interest in emergency care, and this is often reflected in ignorance on the part of ambulance crews and the general public on how best to deal with casualties.

Understandably, there can be little enthusiasm for the reorganization of casualty and resuscitation services unless treatment holds out some real chance of success, and the most striking conclusion to be drawn from a review of the pathophysiology of injury, presented at the WHO seminar on the organization of resuscitation and casualty services (Leningrad, July 1967), is precisely the tremendous potential for advances in treatment. Many more lives could in fact be saved, and the sooner an injured person’s condition can be fully assessed—clinically, biochemically, and electronically—the sooner the mass of new knowledge can be used for his benefit.

When a serious accident occurs, the victim’s first need is for treatment that will maintain his vital functions until expert assistance is available. It is important to teach as many laymen as possible how to recognize distress, and what action to take in an emergency. In modern first aid, there has been a shift of emphasis from bandaging and splinting to the maintenance of circulatory and respiratory function. This approach improves the patient’s chances of survival, and very little equipment is required. The two skills that are most needed in the early care of injured people are:

(a) diagnosis, e.g., recognition of respiratory distress, circulatory failure, or fracture of the cervical spine, and the general recognition of the degree of urgency;
(b) carrying out the necessary first aid, e.g., clearing the airway, promoting respiration and circulation stopping obvious haemorrhage.

Special attention in any emergency must always be directed towards disturbances of the respiratory system. The main problem in resuscitation is to supply the organism with sufficient oxygen. Shock is a discrepancy between oxygen supply and oxygen need, and first aid should be given to increase the supply of oxygen and cut down consumption.

Every doctor, regardless of his speciality or status, must know how to act in an emergency. It is essential that the recent advances in resuscitation and in respiratory and circulatory support should be adequately covered in the medical curriculum, and short refresher courses for practising physicians should be held at regular intervals, so as to enable them to keep abreast of new developments in first aid.

In many countries, there are still no regulations governing the training of ambulance crews. New regulations in Sweden provide for basic training in first aid for ambulance personnel on recruitment. Three weeks of theoretical training are followed by four weeks of demonstrations and practical work, including exercises in establishing and maintaining a free airway, different ventilation techniques, oxygen therapy, and closed-chest cardiac compression.

Communication

Ideally, casualty and resuscitation services should be so organized as to provide high-quality first aid at the earliest possible moment. In this, communications clearly have a vital importance part to play.

First of all, people at the scene of the accident must be able to summon assistance without delay. Telephones should be readily accessible to the public, even in rural areas. Callers should be able to summon help by dialing an easily memorized number, and this number should be clearly displayed on the telephone box, preferably with instructions in several languages. Such calls should be free of charge, so that the caller does not need to waste valuable time hunting for special coins.

Second, there must be a communications system for selecting and directing the ambulance. Direct telephone lines should be used, as public lines are likely to be blocked at times of catastrophe. These facilities should be backed up by radiotelephones using specially allocated frequencies, preferably shared so that the police, ambulance or helicopter crews, and hospital staff can speak freely to one another.

Third, there must be communications providing the helpers in contact with the victim, at the roadside or in the ambulance, with access to specialist medical advice. An experimental consultation service has recently been introduced in France, whereby radio monitoring of the victim’s vital functions enables a centrally based specialist to make a diagnosis and decide upon immediate treatment and disposal.

The ideal solution, of course, is for specially trained doctors, or others who can provide skilled and experienced care, to travel with the ambulance. In the Leningrad medical services, which participants in the seminar were able to see in operation, it is customary for a
physician to accompany an ambulance on an emergency call. However, some participants felt that in certain countries such an arrangement would make excessive demands on medical manpower and that the physician’s time might be used more effectively, although they recognized that some resuscitation techniques are becoming so complex that the skills needed will soon be found only among experienced doctors.

Transport of accident Victims

A paper on the transport of accident victims in the USSR stressed that the task of the ambulance service is no longer merely to get the patient to hospital, but also to diagnose and treat him in transit and to provide the necessary medical care before and during transport.

The type of transport selected will depend on the severity of the injury, the distance to travel, the state of the roads, and other factors. In the USSR, casualties are usually transported in ambulances, motor coaches, ambulance planes, or helicopters, although other means of transport are used in exceptional cases. Reindeer sleighs and dogsleds are sometimes necessary in the extreme north, for instance, and horse-drawn vehicles may be the most suitable form of transport in marshy districts.

Ambulance Standards

The requirements that should be met by a standard ambulance were set out in a working paper by participants from the USSR. There should be an absence of noise, vibration, swaying, or jolting. It should be well lit and offer good access to the patient on all sides. Besides the artificial respiration and anaesthetizing equipment already mentioned, the vehicle should be provided with a special board for fractured spine cases, a cupboard for medicaments and instruments, and special fixtures for blood and plasma-substitute transfusions.

Ambulances for specialized emergency care in the event of severe injuries and complications should be differently constructed, with much greater height clearance and space for carrying out emergency operations. They should be equipped with everything that is essential for emergency medical care in the case of traumatic shock and a variety of critical conditions: portable respiratory apparatus, a pacemaker, a defibrillator, electric suction apparatus, a bactericidal lamp, and so on.

Participants in the seminar agreed that the ambulance is an essential tool of the emergency service and must be an integral part of it, and they united in condemning the private ambulances that still exist in some countries. Minimum standards of ambulance construction and design should be laid down. All accident units should be provided with a helicopter landing pad, and there should be standard arrangements for routing helicopters to and from accidents. This is particularly important in dealing with accidents that may occur a long way from roads, such as plane crashes, or on congested roads where conventional ambulances are unable to reach the victim.

To sum up, the universal application of all that is now known about the pathophysiology of injury would lead to a tremendous increase in the survival and recovery of accident victims. The main problem now is not what should be done, but how to arrange that it is done. The answer lies largely in training physicians and others in modern first-aid techniques, in providing specially designed and well-equipped ambulances, manned by skilled personnel, and in making a highly developed system of communications available to everyone who has to deal with an accident.