

(EMS) system providing prehospital basic and advanced cardiac life support using on-line tape recordings of prehospital cardiopulmonary resuscitation (CPR) efforts. In the evaluation of advanced trauma life support, voice recordings pose problems because of surrounding noise, the much more complex setting and the more differentiated treatment compared to advanced cardiac life support. Michaelson *et al*² described the usefulness of videotaping in trauma admitting areas when used to improve quality.

Methods: Prehospital trauma management performance of a helicopter crew (anaesthesiologist, paramedic, local EMS personnel) was recorded and evaluated using video recordings by a small, flexible, microcamera and a portable video tape recorder carried in a backpack.

Results: The described recording technique—even in remote surroundings—is easy to perform and very reliable. So far, 15 calls involving 32 patients have been evaluated during a two-month period. Mean values for time intervals between landing and take-off were 26 min. Three major time-consuming factors found were: (1) entrapped patients that took additional time of 18 minutes (min) on average; (2) difficult patient conditions (e.g., for the establishment of intravenous lines, endotracheal intubation) that required an average additional time of 18 min.; and (3) the lack of EMS team coordination during invasive measures (e.g., anaesthesia induction, chest tube insertion, etc.) that required an average of 6 min. of additional time.

Conclusions: Videotape recording using a microcamera is a reliable and feasible technique to evaluate the prehospital management of trauma patients and to define areas of quality improvement.

References

1. Schneider, et al: Resuscitation 1994;27:197–206.
2. Michaelson, et al: Eur J Emerg Med 1997; 4:94–96.

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Key words: advance cardiac life support (ACLS); advanced trauma life support (ATLS); anaesthesia; extrication; intervals; intravenous lines; intubation, endotracheal; quality assurance; trauma; videotape recording

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Medical Support for Children During Mass Gatherings

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Introduction: Mass gatherings are special situations for which mass medical care must be preplanned. Fairs, concerts, parades, and rallies are some events that cause large numbers of people to gather in one place. The extent and quality of medical care was measured at a mass gathering of approximately 100,000 children, meeting at a television-sponsored fun fair.

Methods: Every patient contact was recorded on printed forms, including data such as the number of patients treated, patient gender, parent's escort, time distribution of patient contacts, duration of treatment, diagnosis, therapy,

and patient disposition.

Results: Eighty-one male and 111 female patients were included. Only 0.19% of the estimated number of participants were treated during the 9-hour period. Twenty percent of all of the children up to the age of 10 years, who needed medical help were not accompanied by an adult; 75% of all patient contacts were made during the afternoon; 164 (85.4%) suffered only from minor medical problems or injuries and were treated for less than 10 minutes. The most common complaint was minor trauma, 103 patients (53.6%), followed by minor medical problems, 21 patients (10.9%); insect bites, 20 patients (10.4%); and serious medical problems, 19 patients (9.9%). Treatment provided included dressings, 100 patients (52.1%); local therapy, 68 patients (35.4%); analgesic therapy, 10 patients (5.2%); and others. Only 4 patients (2%) had to be admitted to local hospitals, mainly for diagnostic measures, and 10 (5.2%) were transported to a family practitioner.

Conclusion: Most of the medical needs in this young population were minor. However, medical teams must be prepared for serious, life-threatening medical problems, including trauma, as well. The determining factor for overall quality of care is the rate of hospital admittance, which must be kept as low as possible.

Key words: children; demography; mass gatherings; medical care; preparedness

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Clinical Practice of Cultivating Therapy in Treatment of Burns

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Objective: To probe into the curative effect of cultivating therapy in deep second- to light third-degree burns.

Methods: We selected the same term in-patients (40 cases) and cultivated their deep second- to light third- degree burns (light second and deep third excluded) with MEBO for external use.

Results: Deep second and light third degree burns in different locations were treated with the same therapy. The duration of both the liquefaction and the healing of the burns was different.

Conclusion: Cultivation therapy can improve the microcirculation and the liquefaction of the wound, and shorten the period of healing.

Key words: burns; cultivation, early; healing; liquifaction; MEBO; treatment; topical

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Collaboration between Firemen, Civil Protection, and Medical Team During Extrication

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Introduction: During an accident with a truck, the driver is

pinned below the truck. No possible access exists, and only an ankle can be reached.

Method: Collaboration between firemen, paramedics, medical team, and civil protection must permit extrication of the driver as soon as possible with maximum of security for the driver. This patient was conscious, can answer the questions, and has problems breathing because of compression.

Results: Following consciousness, the paramedics gave oxygen to the victim with a mask introduced below the truck as close as possible of the supposed localization of the face.

The fire personnel attempted to move the truck with several extrication apparatus, but with no results because of the weight of the truck. Civil protection then was called.

The medical team then set a trans-tibial infusion line and sedation using ketamine.

Civil protection then lifted the truck with a wrecking crane.

After the truck was lifted, the paramedics could then place a cervical collar and a backboard and begin monitoring vital signs. The medical team could then set a peripheral intravenous line.

Conclusions: Collaboration between different services (firepersons, paramedics, doctors, nurses, and civil protection) permitted extrication in one and a half hours with maximum efficiency.

Key words: compression; doctors; efficiency; entrapment; extrication; firemen; nurses; paramedics; civil protection; team

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Management of the PMA (Advanced Medical Post): Contributions of New Tools

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Introduction: Any catastrophic event implies problems in the management of the victims at the scene of the accident, as well as identifying the appropriate area to which they should be admitted. The implementation of the "red plan" in our industrial nations is mainly in response to "catastrophic accidents with limited effects" (ACEL). The administrative management of the disaster is at the charge of nonmedical authorities, and must face on one hand, the difficulty of management appropriate to the ACEL, but also on the other hand, the pressing demand of information on behalf of the media. This implies a constant and effective flow of information to the administrative authorities through the medical staff, mainly at the level of the "advanced medical post" (PMA). It also demands a successful secretariat with fast and reliable communications that facilitates permanent control of victims' movements within the PMA. In this paper, we explain innovative measures to meet this target.

Method: The first point is about the initial and definitive identification of the patient. Ideally, the victim is identified, conscious or not, at the site of the event, by means of recognition that is appropriate for him or her. We use bracelets that bear a bar code in order to use the advantages

of the computerization of the PMA. These bracelets are of various colors according to the severity of the victim's injuries (absolute emergency [UA], relative emergency [UR], injured, dead). A bar code identifying the number of the bracelet is written on it transversely and longitudinally, so that it can be read quickly no matter the position of the patient. In addition, it has detachable labels that carry the bar code, and the numbers also are available. They can be used at each level of management of the disaster.

The second point is computerization of the PMA, which consists of a network system of laptops and printers that equip a secretariat at the entrance of the PMA, another secretariat at the exit, and one at the headquarters. The initial conditions of the software elements are: (1) simplicity and speed of application, (2) simplicity and speed of use with the assistance in crises by means of pop-up menus, (3) automatic publishing of list and statistics during the course of the mission, (4) respect for the input-output chain, with control of double or missing elements, and (5) modular use (no position or server dedicated) and total security of data autonomy for 3 hours.

To test this equipment in actual conditions, we took advantage of the annual exercise of the SAMU 67 to perform a "double blind" test using a classical secretariat and a computerized secretariat. The exercise consisted of an accident of a tramway in a tunnel using actors simulating as close as possible to reality, including desperate and impulsive acts that may occur with patients under stress.

Results: The superiority of the computerized secretariat could be seen within the first quarter of an hour, because only the computerized "version" was able to provide regular information regarding the situation in real time with only two members of the staff engaged in the process. Acquisition was facilitated largely with the bar code bracelets, because one person was able to register 41 patients at the entrance within the first 20 minutes. In addition, use of the computer version avoided double registrations, and provided a precise picture of the flow of the victims. On the other hand, the secretariat done manually registered doubles and lost one victim. The exercise was concluded after 1.55 hours during which time 78 victims were treated (8 UA, 14 UR, 56 injured, 0 dead).

Conclusion: This experiment of "double blind" type demonstrated the feasibility of computer-assisted management of the PMA. Furthermore, we were able to define a number of advantages: (1) reliability and speed of balance listing supplied in the operational headquarters (PCO), (2) constant check of patients flows within the PMA, with fast detection of possible errors, and (3) savings in terms of the numbers of staff engaged in the process. Additionally, this type of management remains flexible with regard to the type of catastrophic accident, constant connection with the SAMU, management of destinations, management of several PMA, and an "evacuation grouping point".

Key words: advanced medical post; communications; computers; disaster; information; records; registration; triage

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