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Changing Emphasis in the Management of Penetrating Large Bowel Injuries

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As a result of civil disturbance in Northern Ireland, the management of penetrating abdominal wounds has assumed an increasingly significant role, whereas the incidence of blunt abdominal trauma in road traffic accidents has decreased in recent years.

In 260 cases of penetrating abdominal trauma, the overall mortality of 14% was a reflection of the frequency of multiple-organ trauma, gross peritoneal contamination, and high velocity missile injuries.

Among 105 patients with missile injuries of the large intestine (100 gunshots, 5 bomb blasts), there were only 16 cases in which visceral injury was confined to this organ. None of these latter patients died. In 18 fatally wounded patients, a mean of 3.8 intra-abdominal or intra-thoracic organs were injured.

Urgent resuscitation is of paramount importance. Special investigation must not be allowed to lead to undue delay in undertaking laparotomy. Exploration is mandatory in all cases of abdominal gunshot injury. Primary repair, even for left-sided colonic lesions, now is practiced more widely. In more favorable circumstances, a colostomy may be omitted, e.g., if less than six hours have elapsed since the time of injury, if there is little peritoneal contamination, and if there is minimal injury to other intra-abdominal organs. In recent years, a conservative, "watching" policy has been used more widely in the management of selected abdominal stab wounds.

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Prehospital Therapeutic Strategy for Thoracic Trauma

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Thoracic trauma occurs frequently as a result of road accidents, falls, gunshot wounds, etc. For prehospital teams, a serious thoracic lesion is one of the most difficult cases to deal with. The risk of acute respiratory difficulty associated with a possible hemorrhagic collapse requires the association of several therapies: ventilatory assistance (tracheal intubation); volume replacement; thoracic drainage; placement of a military anti-shock trousers (MAST); and autotransfusion.

In cases with respiratory difficulty, the emergency physician must determine if a thoracic lesion is the cause and requires emergency drainage. The order of emergency steps is important: 1) setting up infusion and oxygen inhalation; 2) thoracic drainage; and 3) tracheal intubation and artificial ventilation. A very experienced physician may practice anaesthesia with intubation immediately followed by thoracic drainage.

Circulatory assist often is appropriate. The placement of a MAST should be considered. Use of the section around the legs is almost automatic, while the abdominal part is to be used only when the patient's thorax has been drained.

Autotransfusion is a technically easy prehospital procedure. It may be used when the drainage contains much blood and is sterile. This enables reinjection of large volumes of shed blood. This technique avoids a potentially lethal drop in hemoglobin due to filling with gelatin or crystalloid solutions. This emergency situation requires a special sterile kit to ensure maximum efficacy and optimal asepsis.

The authors will present slides of SAMU 71 practical experience.

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Jugular Bulb Metabolic Data within First 12-Hours After Severe Head Trauma

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Objective: Jugular bulb metabolic monitoring has been introduced as an indicator of adequate brain perfusion. By monitoring jugular venous oxygen saturation (SjO_2), arterial-jugular differences in oxygen content ($AjDO_2$), and jugular-arterial differences in [lactate] (jADL), the presence of ischemia can be detected (LOI = JADL/$AjDO_2$ >0.40), hypoperfusion (SjO_2 <55%), and hyperemia (SjO_2 >80%).

Methods: A prospective analysis was made of these jugular data in 44 patients suffering from severe head injury (GCS <8), within the first 12 hours after trauma.

Results: In 13 patients, the metabolic data suggested cerebral ischemia and six patients had evidence of cerebral hypoperfusion (SjO_2 lower than 55%). Thus, more than 40% manifest either ischemia or hypoperfusion. Two patients had cerebral hyperemia (SjO_2 > 80%). Further analysis of the initial parameters is shown in the Table:

Patients		ICP	CPP	$PaCO_2$	artlact
13 (ischemia)	m:	17.2	79.5	33.4	33.8*
	sd:	9.1	24.6	8.9	19.1
6 (hypoperfusion)	m:	13.5	74.0	32.3	21.6
	sd:	6.6	19.7	4.3	13.2
2 (hyperemia)	m:	7.0	96.0	40.5	16.5
	sd:	2.8	10.6	2.1	3.5
23 (normal data)	m:	12.8	80.4	35.4	21.8
	sd:	7.1	17.3	6.3	10.3

No statistically significant (*) differences (except for the arterial lactate levels) occurred between these different groups.

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Conclusion: Using these conventional parameters in severe head trauma patients (as icp and cpp), we were unable to suspect the presence of ischemia or of hypoperfusion. This emphasizes the importance of early jugular bulb metabolic monitoring in severe head-trauma patients.

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Partial Immobilization as a Means to Initiate Rapid Transport

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Introduction: Although commonly taught, cervical-spine immobilization is a relatively unproven procedure. Also, it frequently is time-consuming and could delay needed care in hemodynamically unstable patients.

Objective: To develop techniques for partial cervical-spine immobilization in order to shorten scene times in cases of major trauma with hemodynamic instability.

Methods: Techniques were developed to streamline cervical spine immobilization. They included: 1) placing the patient directly on a long backboard after a rigid collar has been applied; 2) manual stabilization of the head and neck; and 3) strapping the patient down using only gurney straps. All other strapping is done after initiation of transport. In addition, an algorithm was developed to guide paramedic students in the use of a partial immobilization when indicated. As students were tested using simulated trauma patients, inappropriate use of the algorithm was considered to be a failing performance.
Results: Of 53 students tested, 52 (98%) were able to demonstrate appropriate use of the spinal immobilization algorithm in simulated trauma patients.
Conclusions: Paramedic students can be trained to prioritize the importance of cervical spine immobilization depending on the clinical situation. Using these techniques, scene times could be reduced in some critical trauma situations.

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Splint Treatment of Injuries of the Limbs and the Cervical Spine in Disaster Situations

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Objective: To describe new splinting techniques using the SAM-Splint in various emergency and disaster situations.
Methods: Different splinting techniques were evaluated: air-splints; vacuum-splints; Kramer-splints; and the SAM-splint in the field. The splints were tested in war situations in Kampuchea, Croatia, and the Middle East, and in emergency medical services systems in Switzerland, Germany, and Austria.
Results: The SAM-Splint proved best in meeting the demands of Disaster Medicine for the following reasons: easy to apply; handling easy to learn; possible to splint all extremities and the cervical spine; can be left on for a longer time period; not affected by weather extremes; radiolucent; extremely lightweight; soft, without need for additional padding; can be cut to any size; requires small storage space; durable and reusable; and inexpensive.
Conclusion: The SAM-Splint is light and, when rolled up or folded together, easily can be stored in any bag or pocket. It comes rolled up and is transported like an elastic bandage. It becomes a splint with enough rigidity only after structural bends are performed. Then the characteristics of the material change completely, and what was once malleable is now stiff and has structure. Considering all of these characteristics, it is an ideal tool for disaster medicine.

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The Rio de Janeiro Miguel Couto Trauma Center Experience in the Management of Extremity Trauma

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Extremity trauma rarely is life-threatening, but associated injuries can be. If not managed properly, some of those lesions can produce a permanently disabled extremity

This purpose of this paper is to help the trauma team identity life- and/or limb-threatening injuries related to extremity trauma and to explain the initial management of these injuries, including application of dressings, splints, traction splints, and short-term casts. The goal of immobilization is to prevent further injury and to control pain.

In the primary survey (A, B, C, D, E) the extremities must receive attention when bleeding (exsanguination hemorrhage), which includes maintaining traction of extremities with suspected or obvious fracture, as well as application of direct pressure.

The secondary survey includes the study or perfusion alignment, deformity, and function, including neurovascular injuries and wound care protection.

The quality of care administered by prehospital and emergency department staff can affect the recovery significantly and ultimate rehabilitation of any patient with extremity trauma. The information obtained from the patient, relatives, EMTs, or bystanders at the accident scene should be included in the patient's medical record.

Open fractures, compartment syndrome, joint injuries, multiple extremities trauma, pain control, and immediate immobilization, as conducted in this Trauma Center in Rio de Janeiro, will be discussed.