

Intervention teams' point of encounter during the phase of scene, injury, and rescue control with a complex patient and scenario

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The accidents that happen when there is a sudden disruption in the stable relationship between an individual and their environment, involving violent forces causing a severe trauma, are defined as organ damage through environmental disturbance.¹ Coordination and decision making in the tandem rescue-care in situ, determine the whole intervention and efforts of the care. The result depends on proper performance and coordination of the group in the whole care chain.² A clear and unique action procedure does not exist. All of the people involved in initial attention in the scenario must have, as a core standard, safety. Control of the scenario and damage includes active and passive safety of both patient and staff.²

Description of the scenario

Factory located 15 km from an urban zone. Inside the perimeter, in the outer region, motor installations, deposits and Storey pipes are found. In the engine installations there is an entrapment; the lower right member of a worker has been trapped, causing a severe trauma.

Initial phase: control of the scenario

The operating firefighter is driven to the accident inside the Factory. On site, some space is secured until care support arrival. The general scene inspection made by the firefighters emphasizes the potential risks for intervener and patient safety: electric risk, inundation in the rescue area, flammable atmosphere and the nature of the pipes' circulating products. The rescue operation minimizes the potential risks, controls the cut of the electric fluid and establishes a safety zone by bailing out the flooded area's water.

Evaluation phase: damage control

In the outer installations, there is a worker, a maintenance operator, who suffers a lower right member entrapment in one of the motors. The proximal two thirds of this member are wound around the axis of the motor, jeopardizing from the infracondylar zone down of this member. At the arrival of emergency assistance, the patient is conscious, in traumatic shock and immersed in a scenario with a high level of stress and complexity. In the first seconds with the patient, during initial contact, the patient expresses that he is not allergic to any medicine and has not had any severe pathology. The sedoanalgesia consists of Ketamine given in a low intravenous doses of 2 mg/kg and some doses of Fentanyl 0,15 mg.^{6,7}

Intervention phase: rescue

The action strategy, method and moment, of the firefighters, emergency 061 resources and installation technicians, is planned.

In terms of complexity, temporal clinical dates and vital signs: SBP: 140 mmHg/ DBP 69 mmHg; pulse 80, sinus rhythm, RF: 16 rpm, satO₂ 99%, Glasgow 15, trauma score 12, pain 10/10. Analyzing all aspects, they chose to act in the posterior part of the motor, a very specific and accessible area to perform the inverse rotation of the axis and, at this time, roll out the member.

Consulting the antecedents in situ through a digital medical chart, the patient presents distended cardiomyopathy, auricular fibrillation treated with anticoagulant Rivaroxaban, 20 mg. Allergies: amoxicillin. In the initial contact no reaction to medicines was expressed due to the post-traumatic shock situation and the semi-disconnected state in which the injured was found, leading to initially biased information.

In the primary treatment of the patient, an external hemostasis with SOF tactical tourniquet 1.5 is performed on the

proximal third of the femur to control the hemorrhage before unrolling the affected member. The device will be used for an hour and a half until arrival at the hospital.

After freeing the member, an orotracheal intubation isolates the airway and a physiological tranexamic acid serum is administered. Afterwards, they proceeded to cleaning of the wound, administering hemostatic celox, bandaging, and immobilization of the lower member. Finally, they proceeded to the transfer to the Hospital Center, which had previously received a trauma code alert.

Progress and clinic course

Clinical trial: traumatic amputation above the knee, no complications. CIE (897.0). The patient reenters due to a dehiscence in the amputation brace. Right leg with favorable progress and without any incident at hospital discharge. There are not any complications associated with the use of the tourniquet.

Final considerations

The advance in technological innovation allows emergency health teams access to the medical record of the patient with just one tool- the "mobile digital medical record", which, in situations where the patient is unable to express his medical injuries to the doctors, has shown to be very useful. The remote access to this medical record guarantees safety and

quality in treatment.³The rescue operation, composed of firefighters with the support of fire station volunteers, maintained the zone's safety, helping to maintain the best position to perform the rotation maneuver, and keeping technical control over the situation as it was asked by the 061 in order to perform the mechanical action to the motor. This allowed the slow and synchronic freeing of the patient.

The hemostatic agent is an optic alternative with a fast and efficient application.⁴ The combined use with a tourniquet in traumatic amputations and massive vascular injuries is an efficient method for controlling bleeding, associated with a lower risk of ischemia or neurologic complications.⁵ It provides more time for revival and certain advanced vitals support techniques. It is always placed before the extraction or evacuation of the patient, according to analyzed studies.⁸

In severe trauma patients, pain is characteristic, in different degrees and magnitude, inducing neuroendocrine and metabolic responses that aggravate the patient's condition. Pain treatment in the initial phase has become a key piece in trauma treatment, in order to avoid further complications.⁷

Summary. The action and coordination of the rescue teams represents the key of care focused on survival. Limiting damages due to secondary trauma injuries is only possible if the correct coordination exists between diverse ambit professionals, who, from their different proficiencies, act in a coordinated manner to achieve the objective .

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