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Referral Pathway for the Patients with Maxillofacial Trauma in Emergency Health Response

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Abstract

Healthcare and logistical needs in emergencies have been acknowledged. The professionalism and standards of care for disaster-affected are improved by the World Health Organization Emergency Medical Team (EMT), The International Committee of the Red Cross, Médecins sans Frontiers, and other initiatives. Mass casualty incidents resulting in maxillofacial injuries establish unique challenges. Maxillofacial management benefits from specialist knowledge, expert skills, and timely Availability of X-Ray resources. The need to strengthen craniofacial care capability is evident. Despite Russian Federation having well-established disaster management plans, including specific maxillofacial surgery implementation, many medical, supply, and logistic points stay unestablished in places where mass casualty events occur. Progressing globally relevant recommendations is the main part of addressing this deficit and Reinforcing preparedness to face such disasters.

Introduction

International and Russian experience to organize medical care in emergency health response of natural disasters, accidents, catastrophes, terrorist acts, and armed conflicts indicates the main role of the triage-evacuation center which is an integral part of the complex of medical and evacuation measures in the general system of medical care for the affected population. It should be noted that in an emergency with a large number of victims there is a tendency to increase among them the proportion of those in need (60-70% or more) in the provision of medical care and treatment in hospitals, medical centers, clinics (stages of medical evacuation) [4]. Currently, in Russia so, much attention paid to multi-faceted activities to ensure measures and technologies to progress the system of medical care, therefore increasing the availability and quality. The results of the study forward possibilities to optimize the emergency response by substantive cooperation and interaction of civil and military healthcare systems, including medical evacuation procedures and referral path leading taking in the attention the status of the injured. Maxillofacial trauma is often associated with multiple traumas and can detect functional aftermaths and aesthetic ugly outcomes. This fact causes the fast medical evacuation of victims in emergency performed by logistic service, as a part one of the most important organizational and functional support [1-7]. This study aims to develop proposals for the development of the system of triage-evacuation centers focusing on the maxillofacial injured in crisis.

Items of research

Sources of information: Normative and methodical documents regulating in the field of health care of the country including the all-Russian service for Disaster medicine and military hospitals, official documents on medical evacuation containing reports from Maxillofacial Surgery Units, special training records which worked out the medical care and medical evacuation; professional civil-military experience of the author. The main research is involving historical, analytical, statistical, and observational methodologies. The studies were organized by following provisions and principles of existing international and Russian legislation. Consumption (withdrawal) of medical supplies is carried out with the permission of the Ministry of Health to provide measures of All-Russian Service for Disaster Medicine on emergency health response and (or) to deliver humanitarian assistance on the territory of the Russian Federation and abroad [8]. The target functions of the triage-evacuation center in emergency health response showed that the operational service near or in the area of the disaster for agility groups is a life-saving point [9].

Results and Discussion

During this study, it was found that for 25 years of functioning in the all-Russian service of disaster medicine, a diverse experience in the organization and implementation of medical evacuation in many crises of different etiology was acquired, and the level of the implementation and technologies significantly affect the quality and availability of medical care not only in the mode of daily activities but also in emergency health response. Annually the specialists of the medevac department cover more than 1.5 thousand patients. At the same time, the great bulk of medical evacuation is carried out in the regions of the Russian Federation. Therefore, the service of Disaster medicine subjects each year, on average, evacuates 7-9 thousand victims in the crises of technogenic and natural character, and medical staff of the medical aviation units in the mode of daily activities-80-100 thousand patients, with the percentages of maxillofacial major lesions in the total number of evacuees from one third or more [3]. There are reasons why medical evacuation is necessary in case of an emergency health response. It is established that the major ones are: limited opportunities of medical units providing maxillofacial care and organizations for rendering medical care to a large number of victims and their treatment on the place of defeat; the need for many victims in the provision of emergency medical care necessary to save (preserve) their lives in hospitals of medical organizations shortly after the defeat (accident) time; the inability to concentrate the necessary medical forces and means in the focus (near the focus) of the emergency; the need for a significant part of the victims in the provision of specialized, including high-tech medical assistance in an emergency form, especially maxillofacial surgery presence, in some cases of a real risk of re- or secondary damage to victims in the focus of crises, etc. The main purpose of referral path procedures is to create conditions for the timely provision of necessary maxillofacial care to patients in full measure. The mortality reduction and early detection of concomitant injuries are the main part of the preliminary assessment including comprehension of the etiology and distribution of facial trauma with a consecutive treatment plan in confines of crises. The acknowledgment of severity can optimize the initial healthcare and set the right time to involve an oral surgeon.



The main features of the maxillofacial injured are:

- i. Disfigurement and deformation
- ii. Contrast of appearance with real severity
- iii. Teeth involvement in some cases could be considered as the secondary bullet wounding
- iv. Vital organs proximity
- v. Increased regenerative abilities of facial tissues due to high blood circulation and innervation.

Hence, Patients with multiple trauma must be referred to a multi-disciplinary trauma center. The mild severity of maxillofacial injured has to be detected in triage and treated in place. According to classification and minimum for Emergency Medicals Teams (WHO certified), the reconstructive and specialist surgery with X-ray/ Ultrasound device are represented in field hospitals type 3 [6]. This sort of deployment is not available in every single country. In this regard, it is necessary to pay attention to the following circumstances. When the latter two goals are achieved, it may be necessary to carry out a medical evacuation of victims who are not sufficiently prepared for it. In such circumstances, the following requirements have to be fulfilled: to carry out a more thorough selection of victims in need of medical evacuation; to ensure a high readiness to provide medical assistance during transportation in an emergency form, to comply with the principles of routing evacuated patients [3,4]. According to the mine blast trauma classification they are contusion, total contusion, air contusion, contusion trauma, a blast lesion, a lesion caused by a blast wave, blast trauma, a blast injury, air blast trauma, detonation, explosive injuries, a contusion-commotion syndrome [5]. The experience of emergency health response in large-scale crises shows that early triage evacuation procedures, primary medical aviation of victims to medical inpatient organizations, and deployment of the field hospital with X-Ray and maxillofacial surgery capacities are life-saving operations. In addition, the importance of burn units should be considered as a mandate and independent component of a diverse complex health care. In terms of the maxillofacial methodology of the triage has to be done with strict acknowledge of severity in every single case:

The mild severity of maxillofacial injured

Isolated or combined, multiple or single injuries of the maxillofacial region within the subcutaneous tissues without soft tissue defect and damage to the TMJ, salivary glands, large branches of the external carotids, and facial nerve, without penetration in oral and nasal cavities, sinuses. Non-penetrating wounds of the eyelids, nose, auricles, and lips with tissue defects. Isolated wounds of the alveolar process with functional groups of teeth; Fractures of the jaws and alveolar process without fragments shifting; Extensive tissues bruises and facial hematomas. In case of adequate X-Ray support, these types of maxillo-facial lesions could be treated in field hospitals in the shortest period. Moreover, in military healthcare, this sort of patient stays an efficient group on service. Other poly traumas and severities have to be treated by inpatient service regarding the readiness to provide medical and intensive care assistance during transportation in an emergency form, such as tracheotomy performing. In formulating an information platform for achieving the research goal. It was necessary to clarify the main factors that in modern conditions cause the actualization of the problem of triage-evacuation procedures to implement.

The study showed that the main reasons for this situation in the context of Russia should be considered:

- a) Creating optimal referral path conditions for the achievement of proximity, availability, timeliness, and a higher level of quality of rendering of medical aid to

the victim at the emergency;

- b) Implementation of long-term policy measures to optimize health infrastructure at all levels;
- c) Development of medical care provision system, including emergency and medical evacuation, using of the IT and telemedicine;
- d) Development of medical aviation;
- e) Reinforcement Field Hospitals by X-Ray and Maxillofacial Surgery Units;
- f) Enhance the outpatient system for maxillofacial lesions for better fracture management;
- g) Pain management promotion;
- h) Involve in training initial dentists from maxillofacial & dentist's units.

Conclusion

Maxillofacial experts have to unify their efforts to a succession of Technical Working Group on maxillofacial care in crises reviewing the literature on craniofacial guidelines, defining, and agreeing on recommendations for maxillofacial surgery in emergency response. Thereby, various medical and other specialists should participate in the development of measures to improve the organizational structure and functioning of the triage-evacuation system in the crises. Such a situation allows us to claim that triage-evacuation interaction could be more efficient with telecommunications and telemedicine provided by the authority, medical units, and organizations engaged in the rescue process, technologies management within their powers, including the implementation of routine healthcare service, clarify the areas of polyclinic interaction.

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