



CIVIL – MILITARY COOPERATION - TOOL ENHANCING THE SURGICAL TEAMS' CAPABILITIES IN DISASTER MEDICAL SUPPORT

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ABSTRACT:

In light of recent world disastrous events, it is increasingly clear that all health professionals need to become more proficient in the recognition, diagnosis, and treatment of mass casualties under an all-hazards approach to disaster management and response

From the author's experience the cooperation between civil and military medical surgical teams could benefit their educational and training processes.

The aim of this article is to present the areas where the military medical teams training and capacities could enhance the civilian surgical teams' preparedness and effectiveness during disaster relief operations.

Descriptive and comparative methods were applied in order to determine the disasters' features with impact on medical support and related to them specific disaster medicine requirements towards medical teams. By cluster analysis the capabilities of the military medical teams and civilian surgical teams to respond to these requirements are discussed in order to describe the areas for military-civil cooperation that could enhance the medical support efficacy.

The possible areas, where the civil-military cooperation could enhance the surgical teams' capabilities for disaster medical assistance provision are described.

Keywords: Surgical Team, Disaster Medical Support, Civil-Military Cooperation, Disaster Medicine, Triage,

INTRODUCTION

For describing the disaster medical support (DMS) requirements for surgical capabilities it is necessary to define what is disaster. A great variety of definitions exists, but the common denominator calls for a disruption of such magnitude that the organization, infrastructure, and resources of a community are unable to return to normal operations following the event without outside assistance. The World Health Organization (WHO) defines generally the disaster as a "A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources." [1] (1) One more practical definition is used in the Emergency Events Database (EM-DAT), maintained by WHO Collaborating Centre for Research on the Epidemiology of Disasters (CRED) – "An unforeseen and often sudden situation or event, that causes great damage, destruction

and human suffering, and overwhelms local capacity, necessitating a request to national or international level for external assistance". [2] When a disaster strikes, the general population expects public service agencies and other branches of the local, district, governmental and state level rapidly to mobilize all their capacities and capabilities in order to minimize and eradicate the disaster impact on community, to rescue and provide the required assistance to all injured and affected. Preservation of life and health are of paramount importance in the organization and execution of the disaster relief operations.

The data about the recorded disasters in the last 100 years clearly highlights the upward trend both in the number and severity of the natural and manmade disasters [3]. Available data presents and other important fact – most of the medical teams sent to the disasters devastated areas are with surgical capabilities. But many of the recent publications [4, 5] argue about the necessity of sending surgical teams, because of the specific disaster relief medical requirements. The time frame for provision of life-saving surgery is almost always not reachable by the specialized surgical teams due to required time for surgical team assembling, transportation to and establishing for operating. But the need of surgical capabilities in disaster relief operation is undisputable. [6, 7]

The aim of this article is to present the areas where the military medical teams training and capacities could enhance the civilian surgical teams' preparedness and effectiveness during disaster relief operations.

MATERIALS AND METHODS

By the means of descriptive and comparative methods the disasters' features with impact on medical support are presented and related to specific disaster medicine requirements towards medical teams. By cluster analysis the capabilities of the military medical teams and civilian surgical teams to respond to these requirements are discussed in order to describe the areas for military-civil cooperation that could enhance the medical support efficacy.

DISCUSSION

In light of recent world disastrous events, it is increasingly clear that all health professionals need to become more proficient in the recognition, diagnosis, and treatment of mass casualties under an all-hazards approach to disaster manage-

ment and response.

Some of the disastrous events features have a direct impact on planning and execution of the medical support provided by the teams [8, 9]:

1. Time of onset, place of occurrence and scale are unpredictable;
2. Unpredictable are the casualties' number, type and severity;
3. Frequently leads to industrial, community, agricultural and private buildings damage or collapsing;
4. Communication and transport means are often destroyed in the affected region
5. Conflagrations, floods, environmental contamination could be observed as consequences depending on type of disaster and its main cause;
6. Sudden appearance of a number of casualties in a magnitude that exceed available medical means and capabilities;
7. Sharp disparity between available and required medical means and capabilities is one of the main disasters' medical features;
8. Sanitary and hygiene in the affected area usually are affected by disaster that leads to severe change in the epidemiological situation;
9. Simultaneously appearance of great in number and percent of severity casualties;
10. Sanitary transport required for medical evacuation and hospital room insufficiency;
11. Could lead to environment pollution that might hamper the surgical teams activities, because of individual protective equipment (IPE) usage requirement and medical activities time limitation in the polluted area;
12. Secondary injuries probability.

What are the challenges related to the above mentioned disasters' features in regards to surgical teams' activities in disaster relief operation? The following groups could be distinguished:

- Organizational
- Clinical
- Physical – Emotional

For achieving the ultimate goal of the all medical activities – life and health preservation, proper organization of the activities and teams composition is required. This principle is of utmost significance in case of disasters, when the number of patients to come, the severity of their injuries and required medical assistance could not be predicted, but the time for life, limb and eyesight saving is limited. Therefore, during the disaster medical relief operations all medical teams have to follow particular principles that differentiate from the common principles of the medical art. The main three of them are as follows:

1. All medical activities are in coordination with the activities of the others rescue teams, as a part of joint effort to manage the critical situation;
2. The objective is not the single injured, but providing the best for the maximum;
3. Medical teams' safety and security are of utmost importance. [10]

Analyzing these principles, the conclusions about the

organization and composition of the surgical teams could be made:

1. The team leader should be in close communication and coordination with other rescue teams leaders – training and communications' means required;
2. The team should be ready to assess the health hazards and evaluate the health risks in the rapidly changing situation – training and means required;
3. The team members have to be equipped with PPE and trained for personal and collective protective measures usage;
4. The team has to be self-sustainable for operating in austere environment, where the medical and technical equipment and other resources are either absent or scarce and the logistic flow is seriously impeded;

From the clinical perspective the surgical team has to be prepared for:

1. Establishing triage area and executing patients' flow triage as a first step of the treatment process;
2. Performing only limited in scope surgeries for saving life and function, in order to provide medical assistance for maximum number injured;
3. Utilizing all available medical equipment, as well as not medical means, but suitable for the medical purposes – e.g. tree branches and linen for fractures immobilization;
4. Simultaneously treat patients with poly-traumas and multi-traumas;
5. Perform surgical interventions without the routine clinical and imaginary checks;
6. Operating with the basic surgical instruments only;
7. Perform not definitive surgeries, but operation with objective limited to patient's condition stabilization in order to be safely evacuated.

The surgical teams' members have to be physical fit for extended shifts, frequently exceeding 16-18 hours, without enough time for recovery and obviously without free day. What is more the recovery could not be efficient as it will take place in devastated area without everyday life commodities as running water, electricity, family and friends etc. The emotional recreation is even more difficult because of the continuous acquaintance with the human suffering and misery. [11]

From the performed analysis we can conclude that disaster medical support is requiring specific organization and training of the surgical teams for their preparation and readiness for disaster medical assistance. From the authors experience in medical support provision to various disasters and humanitarian relief operation, the cooperation between civil and military medical surgical teams could benefit their training process, thus enhancing their capabilities and capacities during disaster medical support. How the specific military medical education and training is addressing the above mentioned challenges?

- Firstly, military medical surgical teams' composition and training are orientated to activities in war conditions. The medical support planning and focused on different scenarios life and computer simulated exercises are preparing the team's members for prompt and adequate activities in austere, complex and hostile environment;

• Secondly, the military medical surgical teams' medical and technical equipment is simplified and tailored to the life, limb and eye-sight saving surgeries. The teams are trained for utilization of available means for providing the best possible outcome within scarcity of resources and under time constraint;

• Thirdly, the military medicine has clear definitions and policy regarding the levels of surgical care to be executed – damage control surgery, primary surgery, definitive surgery, as well as the time and place of these surgeries in the injured treatment process;

• Fourthly, the clear command, control, coordination, communication and intelligence (C4I) standard operating procedures (SOPs) of the military medical support doctrine are providing the required basis for coordination and communication between the teams;

• Fifthly, from its creation for the war medicine purposes the triage system is a basic platform for military medicine activities execution;

• Sixthly, the medical intelligence training of the military medical officers is a valuable tool in case of disaster and humanitarian relief operation, when collection of medical information and the assessment of the fluid situation are

of utmost importance. [12, 13]

• Seventhly, the military medical logistic system is clearly designated for assuring military medical teams sustainability in austere and hostile environment.

CONCLUSIONS

As a result of the performed analyses, authors are highlighting the following possible areas, where the civil-military cooperation could enhance the surgical teams' capabilities for disaster medical assistance provision:

1. Theoretical education;
2. Planning activities;
3. Teams training;
4. Management and execution.

The expected outcomes of these joint training should be creation of:

1. Unified doctrine for surgical care provision in case of disasters and crises;
2. Common organizational and clinical SOPs;
3. Civil-military medical interoperability;
4. Civil-military surgical teams on high readiness for surgical care provision in case of disasters and complex crises.

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