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Analysis of the interventions of Medical Emergency Teams in the north-western region of the Masovian Voivodeship

Abstract

Over the last decades, there has been an increase in health threats resulting from technological advancement, the development of car industry as well as negative changes in lifestyle and the surrounding environment, which has become a challenge for the health systems of modern societies. Therefore, the authorities have set up medical emergency systems worldwide. The main goal of any emergency medical system is to provide with assistance people who are in immediate danger of life and health in a timely manner. According to the WHO, emergency medical systems are an integral part of any effectively functioning healthcare system and they are the first link in patients' treatment and an element connecting pre-hospital care with specialist care provided in hospital settings [8, 9, 64, 96, 101, 113, 114, 126]. In Poland, the provision of the necessary pre-hospital care rests with the National Emergency Medical System, whose scope of organization and activity is regulated by the National Medical Rescue Act of 8 September 2006 [8, 38, 62, 73, 84, 127, 130, 133].

The aim of the study was to analyse the interventions to which Medical Emergency Teams in the north-western region of the Masovian Voivodeship: the Mława, Sierpc, Przasnysz and Żuromin districts were dispatched.

The study was carried out as a medical document analysis procedure of Emergency Departure Cards and Medical Rescue Proceedings Cards completed by specialized and basic Emergency Medical Teams (EMT) members. The study included medical documentation of Medical Rescue Teams from the operational area of Płock 14-02 and Ostrołęka 14-05 - the north-western part of the Masovian Voivodeship, namely the Mława, Sierpc, Przasnysz and Żuromin districts between January 1, 2013 and December 31, 2016.

Based on the medical documentation, the following information was used for the analysis: operating region; operating district; area of action; place of EMT stationing; an average duration of particular stages of Medical Rescue Team proceedings; type of the EMT, leader and gender of the EMT leader; month, season of the year, time of the day, day of the week, the time of intervention, the place of the call and the intervention, the urgency code of the call, diagnosis based on the ICD-10 classification, the

patient's condition, gender and age of the patient; medical emergency procedures implemented; further treatment of the patient; deaths of patients. As a result, 63208 cases of intervention of Medical Emergency Teams were included in the study.

The data obtained from the specialist and basic medical emergency teams records were collected in the Microsoft Excel database of the MS Office 2010 for Windows 10 package.

Obtained data were analysed with STATISTICA 12 (StatSoft Poland) software.

The following specific problems have been enumerated in the study:

1. What are the most common reasons for seeking Emergency Medical Teams in the studied region?
2. Is there a relationship between factors such as gender, age and location of the call and the reasons for the intervention of Medical Emergency Teams?
3. What type of medical emergency procedures are mainly implemented by Emergency Medical Teams at the place of the event?
4. What factors do influence the implementation of medical rescue proceedings by Medical Emergency Teams in the north-western region of the Masovian Voivodeship?
5. Is the time of reaching the place of the event by the Medical Emergency Teams compatible with the standards contained in the Act of 8 September 2006 about National Medical Emergency System?
6. What factors do influence the time of Medical Emergency Teams arrival at the scene of the emergency?

Our research show that the most common causes of calls for Medical Emergency Teams located in the Mława, Sierpec, Przasnysz and Żuromin districts of the Masovian Voivodeship were cardiovascular diseases and traumas.

The gender and age of the patients and the locations of the emergencies were the significant factors influencing the events of Emergency Medical Teams interventions. Among women, people aged 75-89 years and in rural areas, cardiovascular diseases were more often causes of the interventions. In turn, the traumas were found mainly among men, people between 18 and 29 years of age and in urban areas.

Medical emergency procedures most commonly performed by Medical Emergency Teams at the scene of the event included in the following order: non-invasive blood pressure and saturation measurement, physical examination, peripheral vein cannulation and assessment of glycaemic level.

Patient's gender and age, the cause and location of the emergency, as well as the type of Emergency Medical Team and the person acting as the head (leader) of the Medical Rescue Team

were the factors significantly affecting the implementation of emergency medical procedures at the scene of the event.

The time of the arrival at the scene of the event by EMT in the north-western region of the Masovian Province was compliant with the norms of the Act of 8 September 2006 on the National Emergency Medical Services when presented as median and the third quartiles. On the other hand, it was found that the standards regarding the maximum time of arrival at the place of the incident both in the case of cities with more than 10,000 inhabitants and outside this area were exceeded.

The following factors had a significant impact on the time of arrival of emergency services at the place of an emergency: area of intervention, district of action, location of the emergency, the urgency code and the type of EMT dispatched, place of the call and place of the event, time of the year and time of the day, the gender and age of the patient and the reason of the dispatch.

Pre-hospital care provided by Medical Emergency Teams is an essential element of effective healthcare in the case of people with their health and life endangered. The results of the research and analysis of the research of other authors enable better understanding of the conditions of EMT's operations and more effective future use [38, 57, 64, 74, 102, 116, 128]. It is necessary to conduct further research in this area in order to provide the best care for a person with life-threatening problems, and thus improve the quality of services provided in pre-hospital conditions carried out by Medical Emergency Teams.