

Summary

Telephone consultations with The National Centre for Hyperbaric Medicine in Gdynia as an element of first aid in accidents and adverse diving events

Scuba diving is a sport that is associated with exploring the extraordinary underwater world. It attracts people who want to explore new and deeper places. It might seem that technically advanced equipment and proper preparation of the diver guarantee safety, minimize the risk of life and health. Divers' organizations define the rules and the level of substantive and practical preparation of instructors and guides. The task of certified specialized training is to properly prepare personnel for extreme situations. However, data collected by worldwide institutions, such as DAN, indicate that adverse events occur regardless of proficiency level, recorded among recreational divers and instructors. It is to be expected that during any dive an accident can occur. This involves tremendous stress, especially when the injured party is a dive partner. Emotions and time pressure make the ability to use the knowledge acquired so far severely limited. Significant distances between dive sites and hospitals and Emergency Medical Team units mean that first aid will most often be provided by witnesses to the incident or dive partners. As indicated, this is a key element that determines the further condition of the victim. Thanks to the capabilities of modern rescue and ICT systems, it is possible to obtain additional, immediate and, most importantly, specialized assistance from a doctor of a hyperbaric and diving medicine center at any location.

The purpose of the study was to assess the impact of telephone consultations with a doctor on the subsequent treatment of victims of diving accidents and adverse events. In addition, the procedure for implementing oxygen therapy, which is the basis of the first aid provided at the scene by witnesses and emergency services, was verified. The final objective was to assess the level of knowledge of diving instructors and guides in basic medical treatment given to accident victims.

The study was based on an analysis of medical records provided by the National Center for Hyperbaric Medicine. Doctors on duty, during telephone consultations with victims or witnesses of diving accidents and incidents, filled out the relevant forms. All submissions (904) from the years 2004-2018 were analyzed. A questionnaire containing 28 open-ended questions on the principles of first aid (resuscitation, oxygen therapy, hydration, transport) to victims of diving accidents was created to assess the level of knowledge of instructors and guides. 100 correctly completed forms were obtained. In order to answer the research

questions posed, statistical analyses were carried out using the IBM SPSS Statistics 26 package, with which analysis of basic descriptive statistics, Kolmogorov-Smirnov test of normality of distribution, chi-square tests of independence and Mann-Whitney tests were performed. The significance level in this chapter was considered to be $p=0.05$.

In the currently published works, the authors rarely address the topic of diving accidents, especially those involving the Polish territory. Rescue procedures that form the basis of actions with victims are based on algorithms created by DAN and the Committee for Hyperbaric Medicine. Many times, witnesses to an incident become a key element during first aid. Thanks to them, it is possible to obtain the necessary information for emergency services and hyperbaric medicine specialists, providing a basis for the subsequent development of new procedures and improving diver safety. Based on the research conducted in this dissertation, the following conclusions can be made: properly administered first aid by witnesses to victims of diving accidents/accidents reduces the need for emergency services to intervene, recommendations made by KOMH specialists during telephone consultations are only marginally used by responders. The length of time spent underwater is a critical factor that influences the possibility of developing symptoms. In addition, the timing of the appearance of the first symptoms contributes to the decision to implement oxygen therapy. Its immediate application significantly reduces the need for further hospitalization of victims. The knowledge of diving instructors and guides is at an insufficient level, so it is important to introduce constantly updated standardized rescue procedures and guidelines. It also seems reasonable to introduce periodic exams to verify the level of preparation of divers in emergency skills.

Keywords:

diving accident, adverse events, oxygen first aid, National Center for Hyperbaric Medicine