The Necessity of Evaluating the Stability of Pre-Hospital Emergency Service Drugs in Different Climates

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Abstract

One of the indices of development in a society is providing the necessary healthcare for all people. One of the most important pillars of healthcare is emergency care, especially the pre-hospital type. Pre-hospital emergency care starts on the patient’s bedside and ends in the emergency service of a hospital. Proper and timely use of drugs can minimize threats to patients’ lives and keep them from dying. It is obvious that those who use drugs for treating patients need to have a safe deposit of drugs in addition to accurate and correct information to be able to take the first step of treatment correctly and safely. Currently, all emergency drugs in pre-hospital emergency care of Iran are kept in a box with no insulation and in an environment with temperature changes. Although some drug companies do not consider little changes in temperature as a cause of change in drug effectiveness, the conditions in medical emergencies are very different and harder than laboratory environments. In some countries including Iran, the temperature of the ambulance cabin may vary from -30°C in winter in Ardebil to +65°C in summer in Khuzestan. However, world health organization (WHO) suggests storing drugs in a dry environment between 15°C and 25°C and based on the climate of the region up to a maximum of 30°C. Little data exists regarding the stability of drugs in changing temperatures. Johansen et al. carried out a study in this regard on atropine, naloxone, and lidocaine in Utah in 1992 and reported that no considerable change was found in the concentration of drugs. In 2005, Priston et al. carried out a study in the UK on 11 drugs in -15°C and found that some of the drugs have relatively lower stability if frozen. In addition, in the drug instructions of some drugs including atropine, calcium, and morphine the highest storing temperature is indicated to be 30°C and nebulized albuterol should also be stored in 25°C. Obviously, drug treatment is very important in pre-hospital emergency services, which in turn is the first line of treatment in medical emergencies, accidents and disasters and sometimes an injection of atropine or adrenaline can save someone’s life at the onset of a problem. Therefore, the effect of extreme climates of some provinces in Iran on the effectiveness and safety of the drugs used in pre-hospital emergency services should be studied and evaluated. The authors have decided to point out the importance of drug stability in pre-hospital emergency service in various climates hoping that researchers who have the ability and equipment for doing this research evaluate this topic so that the obtained results are shared with managers and any possible corrective measures needed are taken.