Dear Sir,

We read the article “COHgb levels predict the long-term development of acute myocardial infarction in CO poisoning” by Kaya et al [1], as well as “Survival following extreme carboxyhemoglobin elevation” by Hampson [2] with great interest. Undoubtedly, carbon monoxide (CM) is the most common cause of fatal accidental poisonings around the world [3]. Hyperbaric oxygen therapy improves cell oxygen delivery, inhibits lipid peroxidation, and impairs leukocyte adhesion to vessel walls. Accordingly, it is essential to as soon as possible determine the degree of CM poisoning and transport of such patients to a hyperbaric chamber. Because firefighters often arrive on the scene faster than emergency medical service teams and are equipped with the facilities allowing them to enter and operate in the danger zone, this group should have the knowledge about identifying the symptoms of CM poisoning and adequate treatment.

The aim of the study was to assess the knowledge, attitudes, and skills of firefighters with reference to patients with suspected CM poisoning.

The study was approved by the institutional review board of the Polish Society of Disaster Medicine (Approval No. 14.04.2016IRB) and was conducted in April 2016. It involved 47 firefighters from the National Fire Service. Before the study, all participants completed a questionnaire with regard to knowledge and attitudes concerning CM poisoning. Then they participated in a 30-minute training on the pathophysiology, diagnosis, and treatment of CM poisoning. The training was expanded with the use of the ToxCO apparatus (Bedfont Scientific Ltd, Maidstone, United Kingdom; Figure) for diagnosing CM poisoning. A week later, the study participants filled in the above-mentioned questionnaire again.

The mean age of participants was 32.6 ± 5.2 years, and the average work experience equaled 8.5 ± 3.7 years. Before the training, only 25.5% of respondents were able to name at least 5 symptoms associated with CM poisoning. 14.9% knew the reference values of COHb concentration and the volume concentration of CM in the air (in parts per million) suggesting CM poisoning. Moreover, 61.7% would apply the ToxCO device to examine a patient in the case of fire, whereas only 31.9% would do so in a patient with consciousness disorders evacuated from home in unclear circumstances. A week after the training, 97.8% were able to identify at least 5 symptoms of CM poisoning. Also, the knowledge of the reference COHb concentration value and the poisonous air COHb concentration improved to the level of 93.6%; 100% of respondents would use the ToxCO device to examine all patients with any suspicion of CM poisoning. Moreover, all were capable to properly implement the procedure of CO measurement with ToxCO.

The study revealed that after a short training, firefighters were able to correctly identify CM intoxication symptoms, as well as to perform an examination to determine CM concentration in the expired air.

Jacek Smereka, PhD, MD
Department of Emergency Medical Service, Wroclaw Medical University
Wroclaw, Poland

Anna Drozd, MS
Michael O'Donnell, MS
Emergency Medicine Student Scientific Circle at Department of Emergency Medicine, Medical University of Warsaw, Warsaw, Poland

Łukasz Szarpak, PhD, EMT-P, DPH*
Department of Emergency Medicine, Medical University of Warsaw
Warsaw, Poland

*Corresponding author. Department of Emergency Medicine
Medical University of Warsaw, 4 Lindleya Str, 02-005 Warsaw
Poland. Tel.: +48 500186225
E-mail address: lukasz.szarpak@gmail.com

http://dx.doi.org/10.1016/j.ajem.2016.05.078

References


Source of support: No sources of financial and material support to be declared.
Figure. ToxCO monitor.