

An Overview of Hydrogen Sulfide Poisoning in Yamagata Prefecture

Ken Iseki^{1,2}, Akiko Hayashida^{1,2}, Kentaro Yamazaki³, Choichiro Tase⁴

¹*Department of Regional Emergency Medicine, Fukushima Medical University School of medicine*

²*Department of Emergency and Critical Care Medicine, Yamagata University School of Medicine*

³*Department of Forensic Medicine, Yamagata University School of Medicine*

⁴*Department of Emergency and Critical Care Medicine, Fukushima Medical University School of Medicine*

Abstract

Objectives: In Japan, hydrogen sulfide (H₂S) suicides have recently become a serious issue. We previously studied H₂S suicides using hospital-based data. However, most cases did not involve ambulance transfer to the hospital because the victims of H₂S suicides were usually found dead at the scene. Therefore, H₂S suicide-related data elucidating an overview of the patients were not available. To clarify the mechanism of poisoning, we obtained H₂S suicide victim data from the Yamagata prefectural police office.

Methods: We analyzed all H₂S suicide-related data available at the Yamagata prefectural police office.

Results: In this study, a total of 41 cases (29 men and 12 women) were included for analysis. We found that the number of H₂S suicides reached a peak in April 2008, with 14 cases being reported, followed by 10 in 2009, 10 in 2010, 3 in 2011, and 4 in 2012. The mean age of the victims was 31.8 ± 12.2 years (range: 18–77 years), and the median age was 28 years (Fig. 2). Sources of the H₂S gas included cars (22 cases; 54%), rooms (6 cases; 15%), and bathrooms (5 cases; 12%). We also identified several cases of a novel suicide method, wherein the H₂S was generated by mixing hydrochloric acid detergent with a sulfur-based bath additive or sulfur-based pesticide in a plastic garbage bag, in which the victim would put their head or body into the bag.

Conclusions: Most cases of H₂S poisoning are not registered at hospitals; however, the data on these victims need to be reported. Thus far, we have encountered cases of H₂S being generated in a bucket in a confined place, for example, a car or a toilet. However, this new recorded method is highly lethal and may have become widespread via the internet.