Poster Abstracts

PO-10

ANALYSIS OF HYDROGEN SULFIDE POISONING FROM 1986 TO 2015 IN TAIWAN: A CLINICAL POISON CENTER DATA-BASED RESEARCH

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Objectives: Hydrogen sulfide (H_2S) gas are common exist in hot spring area, and underground working environment. People may get exposed to higher concentration of H_2S in confined spaces due to poor ventilation, which may result in health hazards or even lethal. H_2S intoxication is not uncommon and is one of major occupational hazards in Taiwan. However, there was no epidemiologic study that had specifically evaluated H_2S intoxication in Taiwan.

Materials and Methods: This is a poison control center (PCC)-based, retrospective cohort study of H_2S exposure cases between 1986 and 2015. We analyzed the trend and baseline characteristics of H_2S poisoning cases, and compared the differences in exposure scenario and clinical signs between patients with minor and major effects, as well as the differences between severe and fatal cases. Multivariate logistic regression was applied to identify the predictors of poisoning severity. We also searched news report of H_2S intoxication from the internet and compared the data with those reported to the PCC to identify their consistency and the possible causes of each event. Finally, we employed multinomial logistic regression analysis to find factors related to the rate of out-of-hospital-cardiac arrest (OHCA) among patients with H2S intoxication.

Results: A total of 157 cases (involved in 78 events) of H2S intoxication were reported to the PCC from 1986 through 2015; 39 of them died after poisoning. Among them, 70% were males, the mean age was 37 years old, and more than 90% were occupational exposure. Most exposures occurred in chemical industry (including wastewater treatment plant) (46.5%). In the comparison between patients with different severity, patients with major effects were more prone to be poisoned in confined spaces (OR 7.1, p=0.0006) and presented with metabolic acidosis (OR 25.4, p=0.0156). Besides, fatal cases tended to manifest respiratory failure (OR 20.4, p=0.0029), but there was no statistically significant difference between the two groups in terms of confined spaces and metabolic acidosis. Almost all events of H2S intoxication occurred in the absence of adequate ventilation, pre-working detection of hazardous gas concentration and wearing personal protective devices.

Conclusion: In this PCC-based study, we found that severity of poisoning was closely related to confined spaces, metabolic acidosis and respiratory failure. Moreover, most OHCA cases were labor; and poor ventilation and inadequate self-protection accounted for most occupational exposures. Our study findings indicate that adequate education and prevention is the cornerstone in avoiding H2S intoxication.