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Detergent and disinfectant related poisonings before and during the COVID-19 pandemic in Taiwan

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Objective

Detergents and disinfectants (e.g., alcohols, bleach, chlorine dioxide and surfactants) have been used more frequently since early 2020 due to the COVID-19 pandemic, however it's unclear whether the number of related poisonings had increased accordingly. Moreover, it's unknown if the pattern of detergent and disinfectant related poisonings in Taiwan differed from other countries during the same period. The present study aims to analyze the trend and the pattern of detergent and disinfectant related poisonings both during and before the COVID-19 pandemic in Taiwan.

Methods

The retrospective study identified all cases of detergent or disinfectant related poisoning reported to the Taiwan National Poison Control Center (PCC-Taiwan) between two study periods, i.e., 2015-2019 and 2020. Data on age, sex, route of exposure, exposed substance(s), intent of exposure, and clinical outcome were reviewed and abstracted. Descriptive analysis, multivariate logistic regression analysis and trend analysis with cubic spline were then conducted.

Results

A total of 1,420 cases of detergent or disinfectant related poisoning were reported to PCC-Taiwan during the 2 study periods, including 1149 cases during 2015-2019 (220, 229, 223, 240, and 237 in 2015, 2016, 2017, 2018 and 2019, respectively) and 271 cases in 2020. Among them, more than half (n=729, 51.3%) were less than 18 years old, whereas 11.6% (n=165) aged ≥ 65 years. Men slightly outnumbered women in this study (n=721, 50.8% vs n=699, 49/2%). Intentional exposure accounted for 22.3% (n=323) of the cases. Most cases were of either asymptomatic (n=475) or mild effects (n=564); while only 39 cases (2.7%), including 34 (13.99% out of 243 cases) with intentional exposure and 5 (0.49% out of 1,030 cases) with accidental exposure, manifested severe/fatal effects. In comparing the potential differences in the baseline characteristics and/or exposed substances between 2015-2019 and 2020, it was found that being poisoned by HClO and ClO₂ significantly increased in 2020 (adjusted odds ratio [aOR] 3.32, 95% CI 1.91-5.72). Moreover, patients with mild poisonings were slightly less common in 2020 as compared to the pre-COVID-19 period (aOR 0.70, 95% CI 0.05-0.98).

Conclusions

In Taiwan, the number of detergent and disinfectant related poisonings seemed to increase during the COVID-19 pandemic period. Among various exposed substances, HClO and ClO₂ exposure statistically increased in 2020. The majority of patients with detergent and disinfectant related poisoning in Taiwan did not have toxic effects or presented with only mild effect. Nevertheless, 39 patients, especially those patients with intentional exposure, manifested severe/fatal effects, which required prompt diagnosis and treatment.