LETTER TO THE EDITOR

Ocular chemical injury following alcohol-based hand sanitizer exposure: incidence and management

Dominique Vandijck1,2, Dimitri Roels[2,3], Jonas Van Baelen[1], Peter De Paepe[2,4], Anne-Marie Descamps[1,2]

[1] Belgian Poison Centre, Bruynstraat 1, 1130 Brussels, Belgium

[2] Ghent University, Faculty of Medicine & Health Sciences, Corneel Heymanslaan 10, 9000 Ghent, Belgium

[3] Ghent University Hospital, Department of Ophthalmology, Corneel Heymanslaan 10, 9000 Ghent, Belgium

[4] Ghent University Hospital, Department of Emergency Medicine, Corneel Heymanslaan 10, 9000 Ghent, Belgium

Corresponding author

Prof. dr. Dominique Vandijck

Belgian Poison Centre

Bruynstraat 1, 1130 Brussels, Belgium

P: +32 2 264 96 43

E: dominique.vandijck@poisoncentre.be

Dear Editor,

Since the beginning of the Coronavirus Disease 2019 (COVID-19) pandemic, besides other preventive measures, the use of alcohol-based hand sanitizers (ABHS) has increased exponentially as it is of key to control its spread. Nevertheless, and in contrast to what many people are aware of, its use is associated with potential severe risks and should therefore, in particular for children, be kept out of their reach and preferably only be used under adult supervision [1-2].

In 2020 the Belgian Poison Centre (BPC) noted (among a total of 65322 calls) a more than fivefold increase of the number of calls due to ABHS incidents as compared to 2019 (1675 vs. 323 calls, $p<0.001$), respectively 2.6% of all calls. Of these, 480 concerned accidental eye exposure (42 in 2019, $p<0.001$), of which 248 among children (17 in 2019, $p<0.001$) (see Table 1). Although ingestion (71.3%, 1195/1675) is the primary route, ocular (28,7%, 480/1675) is to our opinion quite high, of which more than half of incidents among children between 2-5 years (136/248, $p<0.001$) [3-4]. Within our professional BPC network, ophthalmologists and emergency department (ED) physicians alerted us that in their clinical practice, and as compared to pre-COVID-19, they saw a significant increase of young patients with severe (rarely, even irreversible) ocular chemical injuries following ABHS exposure, with a discrepancy between gel-based vs. water-based solutions (in disadvantage for the gel-based solutions). As the latter is considered an eye emergency, prompt treatment including invasive surgical intervention (respectively, corneal transplantation) in some cases, is required in order to maximize chances for full healing of the eye without any loss of vision. However, and as far as we know, no literature is available reporting on the (long-term) outcome of accidental ABHS, including ‘best practice’ management guidelines.

Currently, and in good mutual collaboration with Belgian ophthalmologists, the BPC promotes the following approach in case of accidental ABHS eye exposure, i.e. one should immediately call the BPC for advice, as the experts of our medical permanence are able to assess the seriousness and urgency of the incident, to stress the importance of immediate rinsing of the eye (and not to wait several minutes or longer), and to explain the correct rinsing technique. Next, it is recommended to rinse for about 15 minutes (definitely for gel-based ABHS) in the rational that many people rinse only half of the proposed time, and that the use of lukewarm tap water is sufficient, this to be sure that no time is lost in the search for an eye wash solution or bottled water. In case the patient wears contact lenses, he will be asked to remove them. When the patient still experiences pain, irritation of the eye, and/or blurring or loss of vision after an accurate rinsing procedure, the advice will be to urgently visit an ophthalmologist or the ED for microscopic examination of the eye, and subsequent therapy. Specifically, for gel-based ABHS incidents a low threshold referral policy is common given a potential worse progression.

As the above-mentioned observations and practice are both ‘experience-based’, we (1) wonder whether colleagues around the world observe comparable trends and case-mix, (2) can provide insights or data regarding (long-term) outcome, and (3) can elaborate on their current first aid poison centers’ management.

References

[1] Gharpure R, Hunter CM, Schnall AH, et al. Knowledge and practices regarding safe household cleaning and disinfection for COVID-19 prevention – United States, May 2020. *MMWR Morb Mortal Wkly Rep* 2020;69(23);705-709.

[2] Chi Lik Au S. Hand sanitizer associated ocular chemical injury: a mini-review on its rise under COVID-19. Vis J Emerg Med. 2020;21 doi:10.1016/j.visj.2020.100881.

[3] McCulley L, Cheng C, Mentari E, et al. Alcohol-based hand sanitizer exposures and effects on young children in the U.S. during the COVID-19 pandemic. Clin Toxicol. 2020 doi:10.1080/15563650.2020.1811298.

[4] Descamps AM, De Paepe P, Buylaert W, et al. Adults with acute poisoning admitted to a university hospital in Belgium in 2017: cost analysis benchmarked with national data. Clin Toxicol. 2020;58(5):406-413.

Table 1. Accidental ABHS eye exposures to children ≤14 years who called the Belgian Poison Centre for medical advice between January 1, 2020 and December 31, 2020 (*n* = 248/1675).

Age (years)	*n* = 248	%
0-2	18	7.3
2-5	136	54.8
6-10	42	16.9
11-14	42	12.9
unknown	20	8.1