

Inadvertent Instillation of Electronic Cigarette Liquid as Eye Drops

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Background

In May 2016 a new European Tobacco Products Directive (TPD) 2014/40/EU was initiated¹. This mandated child resistant containers together with clearly labelled safety warnings and product ingredients on the e-liquid bottles. Other measures included a restriction of the amount of liquid permitted in electronic-cigarette tanks (2mL) and refill containers (10mL), in addition to limiting nicotine strength to no more than 20mg/mL.

Prior to May 2016, the toxicity profiles of electronic cigarette liquids varied considerably. Manufacture and quality control measures employed by companies were inconsistent. Poorly labelled containers of various sizes were available, including small 10-15mL dispenser bottles, which were similar in appearance to pharmaceutical eye dropper bottles.

Method

Telephone enquiries to the UK National Poisons Information Service are recorded on the United Kingdom Poisons Information Database (UKPID). Those concerning accidental instillation of e-liquid solution into the eyes were analysed retrospectively for the period December 2012 to March 2017. The nature of the enquiries, circumstance and outcomes were investigated.



Results

The UK NPIS received a total of twenty-six enquiries concerning accidental administration of e-cigarette liquid into the eye.

Two cases were reported during 2012-2014 and a further 24 cases were documented between 2015 and 2017. Fourteen enquiries related to females (54%), compared to 12 male patients (46%).

Five patients (19%) were aged under 19 years, 19 patients (73%) were aged between 20 and 70 years and two patients were of unknown age.

All enquiries concerned acute exposures. The poison severity scores (PSS) indicated that 92% of enquires had either nil (PSS0) or minor (PSS1) features². One enquiry was moderate (PSS2) and one was unknown. Patients in eleven enquiries were known to have remained asymptomatic (42%). 38% of patients exhibited single key features including: conjunctivitis (n=5), eye pain (n=2), irritation (n=2) or conjunctival discolouration (n=1). Conjunctivitis or irritation was combined with other features in all other symptomatic cases.

Discussion

Whilst ocular exposure to electronic cigarette liquid generally causes only minor features, the risk of accidental eye exposure could be reduced further if e-liquid labels were clearly marked as toxic and containers made to be a different design to that of therapeutic eye drops.

References

- https://ec.europa.eu/health/sites/health/files/tobacco/docs/dir_201440_en.pdf
- Persson HE, Sjöberg JK, Haines JA et al. Poisoning severity score. Grading of acute poisoning. J Toxicol Clin Toxicol. 1998;36:205-213. Image: <http://www.minot.af.mil/News/Photos/igphoto/2001028842/>