Drops of madness? Recreational misuse of tropicamide collyrium; early warning alerts from Russia and Italy

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INTRODUCTION

Tropicamide is an antimuscarinic drug generally used as ophthalmic solution to produce shrinking mydriasis and cycloplegia. Tropicamide has been recently anecdotally reported to be recreationally misused from online sources [3,4]. Similar to other anticholinergics, tropicamide is commonly referred to as a “deliriant” [5,6]. However, there is no mention of tropicamide misuse in the medical/scientific literature. The largest abuse of tropicamide occurs in Eastern European Countries, especially in Russia [3,4], although new alerts have recently emerged from North-Eastern Italy, in the Trento area [7]. Considering the above, we aimed here at analyzing the existing medical literature as well as online material on the misuse of this drug.

MATERIALS AND METHODS

The literature on tropicamide was searched in PsychInfo and Pubmed databases. Considering the absence of peer-reviewed data, results were integrated with a multilingual qualitative assessment of a range of Web sites, drug fora and other online resources (i.e., e-newsgroups, chat rooms, mailing lists, e-newsletters and bulletin boards): between January 2012 and January 2013, exploratory qualitative searches of more than 100 Web sites have been carried out in English and Italian using generic and specific keywords such as “legal highs,” “research chemicals,” “online pharmacy,” “tropicamide,” “mydriacil,” “tropicacil,” “visumidriatic,” “online pharmacies” and “tropicamide recreational abuse” in the Google search engine. Permission for the study was granted by the School of Pharmacy Ethics Committee, Hatfield, UK (15 December, 2010; PHAEC/10-42).

RESULTS

Misuse of tropicamide typically occurs through intravenous injection [3,4,7,8] and the effects reportedly last from 30 min to 6 h; the drug is also known as “seven mother” in relation with “the amount of time (e.g., 7 months) it takes to kill” [3,4,7,8]. Tropicamide is often taken in combination with other psychoactive compounds, most typically alcohol, marijuana and opiates. Like other anticholinergics, tropicamide is used for recreational purposes to achieve mindsets such as unconsciousness and mental confusion [3,6–8]. Medical effects of tropicamide misuse include slurred speech, persistent mydriasis, unconsciousness/unresponsiveness, hallucinations, kidney pain, dysphoria, “open eye dreams”, hyperthermia, tremors, suicidal feelings, convulsions, psychomotor agitation, tachycardia and headache. Last year the death of one 25-year-old Russian male was anecdotally associated with tropicamide misuse [4]. The possibility of a current tropicamide abuse in Italy, especially from the area of Trento, has recently been highlighted [7]. Tropicamide is made available for purchase from both online [12] and regular pharmacies [9,10] and the price ranges from about $7 to about $15 [12].

DISCUSSION AND CONCLUSIONS

Recreational misuse seems to be limited to marginalized individuals with a history of recreational polydrug misuse [3,4,8]. The mechanism of action of tropicamide is not completely clear: it binds to and blocks the M4 muscarinic receptor, but its action on the other muscarinic receptors is still not known [11]. Tropicamide can be accumulated in tissues and body fluids [15,16]; renal or hepatic failures due to tropicamide intoxication are frequent causes of death [16]. Moreover, the general risks of IV injections (such as infections, phlebitis and abscesses) should be taken into consideration.

We were unable to elicit any information relating to the dosages of IV tropicamide. It can be hypothesized that even very low doses of IV tropicamide may be associated with serious levels of intoxications. This work constitutes the first report on tropicamide misuse. It is suggested that more large-scale studies need to be carried out to confirm and better describe the extent of tropicamide misuse in the European Union and elsewhere; moreover, health and other professionals should be rapidly informed about this new and alerting trend of misuse.

REFERENCES