Iatrogenic Poisoning with Atropine containing Eye Drops

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Objective: German ophthalmologists use atropine containing eye drops, mainly for diagnostic purposes. One drop of a 0.5 % solution contains 0.25 mg atropine which corresponds to a intravenous therapeutic dose for children. Atropine is easily absorbed from the mucous membranes of the eye and the gastrointestinal tract. Therefore - as recognized already 100 years ago, regular ocular application may lead to systemic poisoning (1). Today, poisons centre are still involved in such cases and may be able assess the frequency and risk of poisoning. Methods: The GIZ-Nord Poisons Centre Göttingen (GIZ-Nord) is serving 13 million inhabitants in Northern Germany, the Poisons Centre Erfurt (PC EF) is serving 11 million people in Eastern part of the country. A retrospective analysis of all cases of ocular exposure to atropine eye drops reported to these poisons centres between January 1996 and August 2007 was performed. Results: In total, 69 cases were identified in the databases of GIZ-Nord (21 cases) and of PC EF (48 cases) that fulfilled inclusion criteria, corresponding to 1.3 and 3.8 cases per year for 10 million inhabitants, respectively. Age of patients varied between 0.5 to 8.0 years. Besides indented mydriasis the most frequently reported symptoms were flush (28 cases), tachycardia (26), agitation (16) and hyperthermia (14). 3 cases were evaluated to be severe because of grave tachycardia (>190/min) and 12 cases were evaluated moderate according to Poisoning Severity Score (2). In 9 cases only mydriasis was reported. Conclusion: Children suffer from systemic intoxications caused by atropine eye drops which can be life threatening. The frequency varies by a factor of 3 between North and East Germany. Data from poison centres are a solid basis to initiate surveillance measures for pharmaceuticals. Reference: (1) Gray LG. Avoiding adverse effects of cycloplegics in infants and children. J Am Optom Assoc 1979, 50:465-470 (2) Persson HE, Sjöberg GK, Haines JA, Pronczuk de Garbino J. Poisoning Severity Score. Grading of Acute Poisoning. J Tox Clin Toxicol 1998, 36: 205-213