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Proof of a 1-(3-chlorophenyl)piperazine (mCPP) intake: use as adulterant of cocaine resulting in drug-drug interactions?

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Abstract

Since 2005, increasing numbers of seizures of the designer drug of abuse 1-(3-chlorophenyl)piperazine (mCPP) have been reported. This paper describes the unequivocal proof of a mCPP intake. Differentiation from the intake of its precursor drugs trazodone and nefazodone was performed by a systematic toxicological analysis (STA) procedure using full-scan GC-MS after acid hydrolysis, liquid-liquid extraction and microwave-assisted acetylation. The found mCPP/hydroxy-mCPP ratio indicated altered metabolism of this cytochrome (CYP) 2D6 catalyzed reaction compared to published studies using the same procedure. Although this might be ascribed to a poor metabolizer (PM) phenotype, genotyping revealed no PM genotype but indications for an intermediate metabolizer genotype. However, a PM phenotype could also be caused by drug-drug interactions with CYP2D6 inhibitors or substrates such as the co-consumed cocaine and diltiazem and/or diltiazem metabolites, respectively. In conclusion, the presented data indicate a possible relevance of CYP2D6 polymorphism and/or drug interactions to mCPP toxicokinetics, which is important for risk assessment of this new designer drug of abuse, in particular if it is used as adulterant of CYP2D6 substrates such as cocaine.

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