Lisdexamfetamine: A pharmacokinetic review.

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Abstract

Lisdexamfetamine (LDX) is a d-amphetamine (d-AMPH) pro-drug used to treat Attention Deficit and Hyperactivity Disorder (ADHD) and Binge Eating Disorder (BED) symptoms. The in vivo pharmacodynamics of LDX is the same as that of its active product d-AMPH, although there are a few qualitative and quantitative differences due to pharmacokinetics. Due to the specific pharmacokinetics of the long-acting stimulants, this article revises the pharmacokinetic studies on LDX, the newest amphetamine pro-drug. The Medline/Pubmed, Science Direct and Biblioteca Virtual em Saúde (Lilacs and Ibecs) (2007-2016) databases were searched for articles and their list of references. As for basic pharmacokinetics studies, since LDX is a newly developed medication, there are few results concerning biotransformation, distribution and the use of different biological matrices for analysis. This is the first robust review on this topic, gathering data from all clinical pharmacokinetics studies available in the literature. The particular pharmacokinetics of LDX plays a major role in studying this pro-drug, since this knowledge was essential to understand some reports on clinical effects in literature, e.g. the small likelihood of reducing the effect by interactions, the effect of long duration use and the still questionable reduction of the potential for abuse. In general the already well-known pharmacokinetic properties of amphetamine make LDX relatively predictable, simplifying the use of LDX in clinical practice.