Pharmacological Characterization of 4-Methylthioamphetamine Derivatives

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Abstract
Amphetamine derivatives have been used in a wide variety of pathologies because of their pharmacological properties as psychostimulants, entactogens, anorectics, and antidepressants. However, adverse cardiovascular effects (sympathomimetics) and substance abuse problems (psychotropic and hallucinogenic effects) have limited their use. 4-Methylthioamphetamine (MTA) is an amphetamine derivative that has shown to inhibit monoamine uptake and monoamine oxidase. However, the pharmacological characterization (neurochemical, behavioral, and safety) of its derivatives 4-ethylthioamphetamine (ETA) and 4-methylthio-phenil-2-butanamine (MT-But) have not been studied. In the current experiments, we show that ETA and MT-But do not increase locomotor activity and conditioned place preference with respect to MTA. At the neurochemical level, ETA and MT-But do not increase in vivo DA release in striatum, but ETA and MT-But affect the nucleus accumbens bioaccumulation of DA and DOPAC. Regarding cardiovascular effects, the administration of MTA and ETA increased the mean arterial pressure and only ETA significantly increases the heart rate. Our results show that the pharmacological and safety profiles of MTA are modulated by changing the methyl-thio group or the methyl group of the aminoethyl chain.

Author keywords
conditioned place preference (CPP)
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