Animal models of attention-deficit hyperactivity disorder.

Davids E¹, Zhang K, Tarazi FI, Baldessarini RJ.

Author information

Abstract
Attention-deficit hyperactivity disorder (ADHD) involves clinically heterogeneous dysfunctions of sustained attention, with behavioral overactivity and impulsivity, of juvenile onset. Experimental models, in addition to mimicking syndromal features, should resemble the clinical condition in pathophysiology, and predict potential new treatments. One of the most extensively evaluated animal models of ADHD is the spontaneously hypertensive rat. Other models include additional genetic variants (dopamine transporter gene knock-out mouse, coloboma mouse, Naples hyperexcitable rat, acallosal mouse, hypossexual rat, and population-extreme rodents), neonatal lesioning of dopamine neurons with 6-hydroxydopamine, and exposure to other neurotoxins or hippocampal irradiation. None is fully comparable to clinical ADHD. The pathophysiology involved varies, including both deficient and excessive dopaminergic functioning, and probable involvement of other monoamine neurotransmitters. Improved models as well as further testing of their ability to predict treatment responses are required.

PMID: 12668288 [PubMed - indexed for MEDLINE]