Authors:

Didone, V. & Quertemont, E.

TITLE :

Characterization of the development of a behavioural sensitization in female Swiss mice.

Abstract:

The chronic administration of psychostimulants, such as cocaine and ethanol, induces a progressive increase of their acute effects, which is termed sensitization. This behavioural and neuronal long-lasting adaptation is dependent upon many factors, including the drug dose, the schedule and route of administration, and in some cases the context. Whereas several studies have investigated the rapid tolerance to ethanol after a single injection, only a small number of studies have investigated the development of a behavioural sensitization to the locomotor stimulant effects after a few ethanol administrations. More generally, a few studies were conducted to systematically characterize the acquisition and the expression of the sensitization to the locomotor effects of ethanol. The aim of the present study was to precisely characterize the development of behavioural sensitization to ethanol in female Swiss mice after 1 to 16 ethanol injections. A dose-response curve was also determined for both the development and expression of ethanol sensitization. In addition, we tested the effects of these ethanol pre-treatments on the conditioned locomotor response to the ethanol-associated context. The results show that an ethanol dose of at least 2g/kg is required to induce a significant sensitization. However, as few as a single ethanol administration was sufficient to induce a weak but statically significant locomotor sensitization. Additional ethanol injections further increased the locomotor sensitization, which seems to reach a maximum after 8 ethanol administrations (300-400% of the initial stimulant response to acute ethanol). However, no conditioned locomotor response was observed whatever number of ethanol injections. In conclusion, the present results clearly show that a sensitization to ethanol develops immediately after a single injection of at least 2 g/kg ethanol.