

Effects of centrally versus peripherally administered ethanol in C57BL/6J and CD1 mice

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Locomotor activation is often reported to occur after a systemic administration of low doses of ethanol in most mouse strains, as for example outbred CD1 mice. However, in some strains of mice, such as the inbred C57BL/6J mice, and in rats, systemic injections of ethanol typically induce only a depression of the locomotor activity. Recently, Correa et al. (2003) showed that direct infusions of ethanol in the brain ventricles of rats induced locomotor stimulant effects. These authors suggested that some undefined peripheral effects of ethanol may mask its central stimulant effects when ethanol is administered intraperitoneally. The aim of the present study was to investigate the locomotor effects of either intraperitoneal and intracerebroventricular ethanol administrations in two strains of mice, outbred CD1 and inbred C57BL/6J, that are respectively characterized by the presence and absence of a locomotor stimulant response to ethanol. The results showed that ethanol at moderate and high doses induced locomotor depressant effects in C57BL/6J mice whatever the route of ethanol administration. In contrast, ethanol induced a biphasic effect on locomotor activity in CD1 mice with a stimulant response at low doses followed by a significant sedation. Such a response to ethanol was observed after both peripheral and central administrations of ethanol. The results of the present study demonstrate that the locomotor effects of ethanol in mice are not affected by the route of administration, i.e. peripheral or central. In these rodents, there is no evidence that unidentified peripheral effects of ethanol mask the stimulant ethanol effects.