

Résumé de la communication

Quoilin Caroline, Didone Vincent, & Quertemont Etienne.

Gradual changes in the sensitivity to the stimulant and sedative effects of ethanol during adolescence in Swiss mice.

Adolescence is a unique period of development, characterized by adaptive behavioral and neurobiological changes. These modulations are suggested to predispose adolescents to use alcohol and to be particularly vulnerable to its long-term consequences, such as increased risks of later dependence when drinking is initiated early. This latter effect could be in part explained by a specific sensitivity to the effects of alcohol during adolescence. In adolescent rodents, while the reduced sensitivity to the sedative effects of ethanol has been well characterized, its stimulant effects have not yet been extensively studied. In the present study, we aimed to carefully characterize the development of the sensitivity to the stimulant and sedative effects of ethanol across the different phases of adolescence, and to draw thorough dose-response curves for its stimulant effects in each age group. In a first experiment, 21-, 28-, 35-, 42- and 60-day old female Swiss mice were injected with various ethanol doses (0-2.5 g/kg) and were tested for its locomotor stimulant effects. In an independent experiment, mice of same groups of age were injected with 4 g/kg ethanol and sedation was quantified with the loss of righting reflex procedure. Moreover, we investigated the dose-response curves for the stimulant effects of ethanol with higher doses (2.5-4 g/kg) and ethanol metabolism in 21-, 35- and 60-day old mice. Our results show that during adolescence, the stimulant effects of ethanol gradually decrease, whereas its sedative effects increase with age. More precisely, the dose-response curve changes progressively during development, its ascendant part being more widespread and reaching a higher peak in younger mice. Furthermore, the discrepancies between ages for the stimulant effects of ethanol cannot be explained by differences in ethanol metabolism. In conclusion, sensitivity to the locomotor stimulant and sedative effects of ethanol is altered during adolescence, and gradually changes to reach the specific sensitivity of adult mice.