Abstract

Many people enjoy the pleasure of alcoholic beverages. Unfortunately, alcohol-use is also associated with tremendous social, economic and health problems. In this thesis I investigate two different aspects of health-related alcohol problems, using translational approaches in rodent models.

Alcohol-use is often initiated during adolescence, a unique developmental period characterized by ongoing neurobiological and behavioural changes. However, little is known about the long-term consequences of alcohol exposure during this developmental period. Therefore, I aimed to provide a comprehensive behavioural profile of the long-term consequences of two different adolescent alcohol exposure regimes. I report that rats with a history of binge-like, but not chronic, adolescent alcohol exposure show elevated alcohol-intake in later life. Moreover, they demonstrate serious decrements in memory performance. By contrast, other measures of cognitive functioning including attention and impulsivity remained unaffected upon adolescent alcohol exposure. Together, these results provide a basis for further studies on the underlying mechanisms that mediate these detrimental effects of adolescent exposure and may fuel the development of novel prevention and treatment strategies.

I also employed these behavioural models to explore two new strategies aiming to reduce alcohol consumption and prevent relapse. I report that the novel pharmacotherapeutic smoking cessation aid varenicline attenuated alcohol self-administration as well as relapse to alcohol-seeking in rats. Furthermore, using an approach aimed at disrupting alcohol-related memories I showed that administration of propranolol upon retrieval of such memories, reduced alcohol-seeking in rats. Although clinical trials are required to further establish the beneficial effects of these two treatments, they provide putative new opportunities to treat alcohol-dependent patients.