

Effects of a single high dose of Chlorpyrifos in long-term feeding, ethanol consumption and ethanol preference in male Wistar rats with a previous history of continued ethanol drinking

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Chlorpyrifos (CPF) is an organophosphate compound that is slowly delivered in the organism after subcutaneous injection, keeping acetylcholinesterase (AChE) activity mildly inhibited for weeks. We have previously reported reduced voluntary ethanol drinking 8 weeks post-CPF administration in Wistar rats when AChE activity was almost completely recovered. Additionally, the OPs disrupt the functioning of certain neurochemical systems and modify the formation and/or degradation of some neuropeptides with a known role in regulating voluntary consumption of alcohol. Moreover, chronic ethanol intake significantly alters the regional expression of some of these neurochemical systems. Thus, the present study explored whether a previous history with ethanol consumption modify the disturbance in the voluntary ethanol consumption induced by CPF administration. For this aim, we measured ethanol consumption in increasing concentrations (8%, 15% and 20% w/v) from 4 days to 8 weeks following a single dose of CPF. Two experiments were carried out; experiment 1 was conducted in ethanol-naïve rats and experiment 2, in animals with a previous history of ethanol drinking before CPF administration. Additionally, food and body weight measures were collected. We report here a significant increase in ethanol consumption and preference at high ethanol concentrations (15% and 20%) in CPF-treated animals with a previous history of ethanol consumption (experiment 1) and a long-lasting increase in food intake both in ethanol-exposed (experiment 1) and ethanol-naïve CPF-treated rats (experiment 2). Present data are discussed under the interesting idea that CPF targets neurobiological pathways critically involved with ethanol consumption. Additionally, we conclude that CPF effects on voluntary ethanol consumption are

ethanol-experience dependent.

Chlorpyrifos

Ethanol drinking

Food consumption

Organophosphates

acetylcholinesterase

chlorpyrifos

alcohol consumption

animal experiment

article

body weight

controlled study

enzyme activity

enzyme inhibition

food intake

food preference

male

neurotransmission

nonhuman

rat

toxicity testing

Acetylcholinesterase

Alcohol Drinking

Alcoholism

Animals

Brain

Chlorpyrifos

Eating

Injections

Male

Neuropeptides

Organophosphorus Compounds

Pesticides

Rats

Rats, Wistar