P 13 BLOOD TITERS OF AUTO-ANTIBODIES TO DAT AS BIOMARKERS FOR THE RISK OF ALCOHOLISM: THE CASE OF POSITIVE FAMILIARITY

W. Adriani (1), O. Granstrem (2,3), M. Shumilina (2,3), E. Ognibene (1), M.L. Attilia (4), M. Ceccanti (4), G. Laviola (1)

(1) Department of Cell Biology and Neurosciences, Istituto Superiore di Sanità, Rome, Italy

(2) Department of Neurology & Neurosurgery, I.P. Pavlov's State Medical University, St. Petersburg, Russia

(3) GeroPharm Ltd, St. Petersburg, Russia

(4) The Alcohol Liver Disease Unit, La Sapienza University, Rome, Italy

Possible interactions between nervous and immune systems in neuro-psychiatric disease and drug dependence remain elusive. Auto-antibodies (aAbs) targeting neuro-receptors may generate disruptive effects onto behavioral domains. In animal models, circulating aAbs to specific neuro-receptors have been shown to affect both spontaneous behavior and response to psychoactive drugs, suggesting that they may act as determinants of vulnerability to psychiatrically-relevant symptoms in humans. Elevated levels of aAbs to opioid mu/delta receptors were demonstrated both in animal models, following chronic morphine exposure, and in heroin addicts. We investigated the levels of aAbs to selected components of neurotransmitter systems in blood samples from alcohol-dependent individuals.

Blood samples and psychometric interviews were collected from a total of 26 alcoholists (frequenters of the Alcohol Liver Disease Unit). Four samples were excluded, the remaining 22 samples were belonging to two conditions (alcoholism familiarity or not, n=11 each). Sera were analyzed with routine blood analyses for immune cell content and other standard haematic parameters. Also, sera were screened with ELISA techniques for content of aAbs targeting the dopamine transporter (DAT, both DAT-Asp and DAT-C epitopes), Serotonin Transporter (SERT), NMDA receptor subunit NR2, and AMPA receptor subunit GluR1. Titers of all aAbs were analyzed for a possible correlation with indices of alcohol consumption and with results of standard haematic parameters.

The levels of DAT aAbs significantly correlate with alcohol consumption, but only for subjects with positive familiarity for alcohol dependence. Interestingly, DAT protein plays a key role in brain motivational systems, and its levels are found to be altered in alcoholic patients, as measured with *in vivo* imaging techniques.

In the presence of a genetic predisposition, excessive consumption of alcohol does elevate the blood titers of DAT aAbs, a finding which might be also reflect efficiency and/or density of brain DAT protein. Thus, blood titers of DAT aAbs are here proposed as peripheral biomarkers for alcohol consumption, at least in case of a positive familiarity, and might hence be used in human patients to assess the efficacy of therapeutic strategies.

Supported by European Mind and Metabolism Association, http://www.emmaweb.org/index.php