Abstract

Toxoplasma gondii, a single-cell coccidia from almost exclusively parasitic phylum Apicomplexa, does not typically cause acute health issues in humans with most exceptions among immunodeficient individuals and pregnant mothers or, more precisely, their offspring. In the latent phase, the bradyzoites in tissue cysts placed most often in neural and muscle tissues can evolve pressure on the host's body both as a collateral effect of the presence of the parasitic organism in host's tissues and as a consequence of adaptive evolution leading to increase in probability of trophic transmission to the final host, a felid. In humans, this can result in slight changes in personality profiles, deterioration of psychomotor and cognitive functions, and development of serious mental disorders.

The thesis focuses predominantly on one of the aspects of the changes, namely the effect of latent toxoplasmosis on the processing of startle signals themselves and when modified by a preceding low-intensity signal; this processing may be connected with the development of schizophrenia in predisposed individuals. Studies conducted within the project framework found changes int the speed of signal processing in *Toxoplasma*-seropositive non-psychiatric population and differences in performance tests results and brought new confirmation of changes in personality profiles of infected individuals. Studies conducted on a population of schizophrenic patients shown distinctively increased the prevalence of latent toxoplasmosis in male patients in comparison with standard population, and found differences in levels of immunomodulatory steroids, hormones and lipids in the blood of *Toxoplasma*-positive and *Toxoplasma*-negative patients. Evaluation of data collected within the framework of studies of the effects of latent toxoplasmosis on human behavior and reactions brought the discovery of "Justina effect" in experimental games and found an association between levels of steroid and sex hormones and results of performance and cognitive tests.

Keywords

Toxoplasma gondii – prepulse inhibition – startle reaction – reaction times – manipulation hypothesis – schizophrenia