

Freund's complete adjuvant (FCA) could reverse the depressive-like symptoms induced by chronic mild stress (CMS) in mice

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Background: The objective of this work was a comparative study of two animal models in female mice: Chronic Mild Stress (CMS) and Chronic Mild Stress combined with chronic inflammation with complete Freund's adjuvant (CMS + CFA).

Methods: Mice were exposed to CMS for 40 days as food deprivation, water deprivation, forced swimming, flashing light, isolation, wet bedding and wet litter at 4°C. The stress was applied at times that change every day, in order to minimize its predictability. A subcutaneous injection of 0.03 mg/ml of CFA was administered to CMS groups the 18th day of experimentation. Recordings of sequences of behavior in elevated plus maze, open field test and water maze test was made. After decapitation, the brain, thymus, spleen, liver, kidneys, adrenals and ovaries were weighed and we calculated their relative weights.

Results: Exposure of mice to CMS caused a depressive-like behavior revealed by behavioral tests, accompanied by a decreased gain of body weight, locomotor activity and impaired spatial memory signaled by the Morris water maze test. The injection of CFA in mice submitted to a CMS has provided a partial repair of the memory in the Morris water maze, locomotor activity, gain of body weight, weight of adrenals.

Conclusion: Freund's complete adjuvant (FCA) could reverse the depressive-like symptoms induced by chronic mild stress (CMS) in mice.

Key words: CMS, CFA, inflammatory, neuroprotection, memory, anxiety, depression

Biography

Frih Hacène is a Senior Researcher at the Laboratory of applied Neuroendocrinology, University of Annaba-Algeria, Annaba. The area of interest is biological Psychiatry (precisely neurobehaviour and neuropathology of stress). Since 1995 he began his research on the interactions between nervous system, immune system and adrenal axis, in animals (rodent, chicken, etc.) and humans. He wrote a Ph.D. (in 2007) entitled: Study of the effects of post-traumatic stress on the interaction neuro-immuno-gonadotropic humans. In 2005 (2005-2009), he participated in the program agreement Algeria-France (CMEP 05 MDU 665) in Northern Hospital Marseille (France) entitled: Study states PTSD: Epidemiological aspects, immuno-neuro-endocrine and molecular levels. Currently he is responsible for a master neuro-immuno-endocrinology, project manager NRP (National Research Program) entitled: Effects of prenatal stress on the development of Toluene offspring of Wistar rats: Appearance neuro-behavioral and physiological; and provides training in the third cycle doctorate neuroscience. He has published several articles in the field of psychobiology; the most recent are: Frih H., Sahraoui, L., Frih, N., Toumi, L., Bairi, A.M., Tahraoui, A., et al. 2009.

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