

Behavioural Evaluation of a Translational Animal Model of Schizophrenia

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Schizophrenia (SZ) is a chronic and disabling psychiatric disorder affecting about 1% of the population worldwide. Schizophrenia comprises positive and negative symptoms as well as cognitive deficits. Epidemiological and experimental studies indicate that infections during the gestational period represent a risk factor to develop SZ along lifetime, which in combination with stressful events in adolescence may lead to the SZ onset. The aim of the present study was to create a translational “double-hit” animal model of SZ in male and female mice, based in maternal immune activation (MIA, hit-1)—injection of poly(I:C) to pregnant dams, 7.5 mg/kg i.p.—and social isolation (SI, hit-2) in the peri-pubertal period (3-11 weeks). In the four experimental groups (hit-1, hit-2, double-hit and control) locomotion and anxiety were assessed using the Open Field Test (OFT), and the cognitive status (declarative/episodic memory) was evaluated by means of the Novel Object Recognition Test (NORT). No differences were observed in the spontaneous locomotor activity between any of the groups, neither in females nor in males. However, an increase in the percentage of time spent in the centre of the OFT was significantly associated to the hit-1 (MIA) only in female mice ($F[1,53]=4.252$; $P=0.044$, $n=57$). Moreover, a significant decrease in the discrimination index in the NORT was also associated to the hit-1 (MIA) in the subgroup of female mice ($F[1,55]=7.266$; $p =0.0093$, $n=59$). These preliminary results indicate that MIA produces a greater impact in female mice inducing an anxiolytic-like phenotype and cognitive impairments.

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