

GENE-ENVIRONMENT INTERPLAY IN THE INFLUENCE OF EARLY LIFE STRESS ON EMOTIONALITYE. DE LANA MEIRELLES¹, R. Lopes¹, J. Landeira-Fernandez², P.F. Gardino¹¹IBCCF - Instituto de Biofísica Carlos Chagas Filho, UFRJ - Federal University of Rio de Janeiro, Rio de Janeiro, Brazil ; ²Department of Psychology, PUC-Rio, Rio de Janeiro, Brazil

The emotional behavior is influenced by several factors, including environment, genetic and the interaction between them, which is the aim of this work. Early life stress has been related to the development of emotional disturbances late in life, nevertheless recent studies have showed a new operational model to this relation, depending on the genetic background. Regarding to depression-like behavior, the most recent manuals for diagnosis of this disease highlights the importance of assess the anhedonia, more than the blue mood, to a correct identification of this pathology. Animal models of affective disorders has been developed aiming to access all range of depressive-like behaviors. A behavioral test to evaluate this lowest tendency to attend pleasure situations is the Sucrose Preference Test (SPT). The neonatal maternal separation procedure was carried out with the Carioca rats, an anxiety disorder Wistar rat model, developed through selective lines matching based in a task of contextual fear conditioning, which gives rise to two different lines: CHF (Carioca High Freezing) and CLF (Carioca Low Freezing). Six CHF and 10 CLF animals were used in this work. We also used Maternal Separated AFR (Animal Facility Rearing) (n=15) and Non-separated AFR groups as controls (CTR group, n=8). The rat pups were separated as a litter (8 to 10 animals per dam) from the dam from post natal day (PND) 1-14, daily, for a three-hour period/day (MS-CHF, MS-CLF and MS-AFR groups); the CTR group did not receive any kind of manipulation in these 14 days, exception for the home cage cleaning once a week, performed for all groups. The weaning was performed at PND21. All the animals were tested in the SPT at PND 60, using a 10% sucrose-solution. The animals were grouped in 4-6 animals and were tested in a free choice protocol for 48 hours. In the first 12 hours, the animals were trained with two bottles of water in the cage. After this, there were two bottles for each cage: one with water and the other with the 10% sucrose solution. The bottles' location was changed often to avoid possible position preference. The total liquid consumption and then three sucrose consumption ratio were measured. The Kruskal-Wallis test was used to evaluate the differences between the three MS groups. The Dunn's post hoc test showed a difference between the groups in relation to relative sucrose consumption: MS-CHF consumed less sucrose solution than the MS-CLF and MS-AFR groups (KW: 24.02; p<0.001). A Student t test between MS-AFR and CTR groups showed that MS-AFR animals consumed less sucrose solution than CTR group (t=3.372, df=21; p=0.0029), which serves as a control for the Maternal Separation protocol used in this work. These data suggest that maternal separation protocol was able to reduce the sucrose preference in these animals. However, this influence appears to be mediated by the genetic background, reinforce the new operation model to understand the emotional disorders etiology. The authors thank CAPES, FAPERJ and CNPq for the financial support.