Dialogues in Clinical Neuroscience & Mental Health

DOI: 10.26386/obrela.v1is3.86 ISSN 2585-2795

Special Issue on Neuropsychology, from the 1st Panhellenic Congress on Neuropsychology, 27-29 April 2018, Athens, Greece.

Guest Editors: Mary H. Kosmidis, Athanasia Liozidou, Lambros Messinis, Ioannis Zalonis

COGNITIVE FLEXIBILITY IN THE CONTEXT OF BEHAVIOURAL PERSISTENCE IN THE RAT

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Abstract

OBJECTIVE: Animal models of obsessive-compulsive disorder (OCD) facilitate exploration of the still elusive OCD pathophysiology. Valuable as they are in the study of OCD pharmacology, models must integrate evidence suggesting a dimensional conceptualization of OCD. This is feasible if they are utilized in areas where the clinical data present controversy suggestive of distinct OCD subtypes. Such an area is the relationship between OCD and cognitive flexibility. Using a model of directional persistence that was developed and extensively tested for pharmacological isomorphism with OCD in our laboratory, we screened animals for high / low spontaneous directional persistence (SDP). We then compared them on cognitive flexibility using an animal analogue (Birrell & Brown, 2000) of the Wisconsin and CANTAB IED tests.

MATERIAL – METHOD: 12 High and 12 Low SDPs male Wistars (N=30) were assessed in the 7 stages of a rat IED test based on odour and texture discriminations.

RESULTS: Our results replicated control performance in Birrell & Brown (2000) for the dependent variables of discrimination, reversal, intra-dimensional and extra-dimensional shifts, affirming the validity of the test in our laboratory. Comparisons between High and Low SDPs for these variables yielded no group differences.

CONCLUSIONS: Results are in line with a number of clinical OCD studies assessing flexibility and at odds with the rest. This suggests that current OCD models need to be evaluated for cognitive flexibility, so that their congruence with particular OCD subtypes can be assessed. Alternatively, this may suggest the need for reevaluation of current neuropsychological and laboratory flexibility tests.

Birrell JM & Brown VJ (2000). Medial frontal cortex mediates perceptual attentional set shifting in the rat. Journal of Neuroscience, 20(11), 4320-4324.

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