



Mukherjee Pratibha

INTERRELATION BETWEEN DOPAMINE CONTENTS IN CEREBELLUM AND EMOTIOGENIC LIMBICOCORTICAL SYSTEM REGIONS IN RATS WITH DIFFERENT BEHAVIOR TYPES

**Research advisor: Popova L., MD, Doctor of Medical Sciences
Professor**

Department of Biochemistry

Kharkiv National Medical University, Kharkiv, Ukraine

Actuality. Dopaminergic projections to limbic & cortical structures regulate cognitive and emotional functions. Limbic projections influence cerebellum, & cerebellar activity modulates dopamine release in medial prefrontal cortex. Cerebellum role in aggressive and submissive state development was not studied.

Aim. Taking into account that frontal cortex and hippocampus are involved in control of anxiety and aggressive behaviour, the aim of the investigation is to study the interrelation between dopamine contents in cerebellum and frontal cortex and hippocampus in male rats with alternative behavior types.

Materials and methods. Work was carried out on 24 male rats of the young reproductive period. Distribution of the animals into groups with alternative types of behavior was made using a model of emotional stress "Sensory contact" with some modifications. According to the results of testing, animals were divided into 3 groups: dominant, balanced and submissive. Content of dopamine in frontal cortex, hippocampus and cerebellum

was determined by fluorometric micromethod. Statistical analysis of the results was carried out by methods of nonparametric statistics using the package "Statistica 6.0".

Results. The significant decrease of dopamine was found in all investigated structures in submissive males compared with both balanced and dominant rats. The difference in dopamine content between dominant and balanced animals was observed only in frontal cortex. Dopaminergic system forms hedonistic behavior components. Dopamine plays the key role in behavioral disinhibition and anxiolysis. The decrease of dopamine content in frontal cortex and hippocampus in submissive males promotes the formation of submissive behavior. The analysis of correlations between the content of dopamine in cerebellum and structures of emotiogenic neocortical system revealed the existence of close positive correlation between the content of dopamine in cerebellum and frontal cortex (submissive: + 0.881, $P < 0.05$; dominant: + 0.779, $P < 0.05$), in cerebellum and hippocampus



(submissive: + 0.887, $P < 0.05$; dominant: + 0.683, $P < 0.05$) both in dominant and submissive males. This tight positive correlation may be explained by receiving excitatory input and sending reciprocal projections to the medial prefrontal cortex by dopaminergic neurons in the ventral tegmental area, and by modulatory effects of cerebellum on dopamine release in medial prefrontal cortex.

Conclusions. The decrease of dopamine content promotes the

formation of submissive behavior in submissive males by reducing the mediation of positive emotional reactions. The existence of close positive correlation between dopamine contents in cerebellum and structures of emotiogenic limbicocortical system is a evidence that cerebellum is involved in the formation of dominant/submissive behaviors. Dopaminergic system is one of the mediatory systems of this involving realization

Nabok T.A., Zelenska A.N.

ON THE QUESTION OF THE EFFECTIVENESS OF PSYCHOPHYSIOLOGICAL METHODS OF DIAGNOSTICS OF EDUCATIONAL MOTIVATION OF MEDICAL STUDENTS

Research Advisor: PhD, Associate Professor Marakushin D.I.

**Department of Physiology
Kharkiv National Medical University
Kharkiv, Ukraine**

Actuality. The content and structure of human motivation is a significant indicator of the state of health and level of adaptation. In terms of psychophysiology, learning motivation is the basic social needs of man. Study the content and structure of cognitive motivation of medical students is an actual problem of psychophysiological.

Aim: The aim of our study was to find motivation diagnostic techniques of cognitive activity, which would have a reliable degree of protection from the insincerity of

the test and really reflect his attitude to reality.

Materials and methods. The study was conducted on medical students of the 2nd course, who gave free and informed consent to participate in the experiment. On the basis of information retrieval have been selected: the traditional psychodiagnostic methods (questionnaires and projective); technique of repertory grids of J. Kelly (adapted for the study of individual changes in teaching and learning motivation of students) and psychosemantic method of color