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P300 Brain Microstate in deficit and nondeficit schizophrenia

A. Forte*, A. Bernardo, F. Caputo, P. Bucci, A. Mucci, S. Galderisi, M. Maj. *Department of Psychiatry, University of Naples SUN, Italy*

Topographic abnormalities of the auditory P300 in schizophrenia have been found in several studies, usually indicating an impairment of the left hemisphere regions. However, both negative and conflicting results have also been reported. It has been suggested that discrepancies in findings might be related to the heterogeneity of the syndrome. Thus, the investigation of more homogeneous subgroups of schizophrenic patients may represent a valuable strategy in the study of topographic characteristics of P300 in patients with schizophrenia.

In the present study, we investigated the topography of the auditory P300 in 10 deficit (DS) and 13 nondeficit (NDS) stabilized schizophrenics, and 12 sex-, age- and education-matched healthy controls (HC), by means of the so-called 'Brain Microstates' technique.

P300 field strength was significantly reduced in NDS with respect to both HC and DS, and was inversely correlated with psychopathology and duration of illness. A rightward shift of the P300 field was observed only in NDS, and was associated with higher scores for positive symptoms.

Our findings suggest abnormal left hemisphere functioning in subjects with nondeficit schizophrenia.

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Neurological soft signs (NSS) in schizophrenia

G. Bersani*, S. Gherardelli, L. Ramieri, V. Orlandi, D. Pucci, P. Pancheri. *3rd Psychiatric Clinic, Department of Psychiatric Sciences and Psychological Medicine, University "La Sapienza", Rome, Italy*

The study of the presence and severity of Neurological Soft Signs (NSS) in schizophrenic patients (N= 94) has been object of a line of research that investigated demographic, clinical and neurological variables of the illness. NSS have been assessed by the Neurological Evaluation Scale (NES) of Buchanan et al. (1989). Some preliminary meaningful results of the can be presented:

Epidemiological variables (N=94). Significant correlations emerged between Mean Age and Complex Motor Acts ($p=.05$) as well as between Educational Level and NES total score ($p=.02$).

Seasonality of birth (N= 86). No significant correlations emerged.

Obstetric Complications (Presence N= 14 vs Absence N= 18). Mirror Movements to the left ($p=.034$) and Finger Nose Opposition to the left ($p=.034$) are higher in patients group without OC; Left-Handedness is higher in the group with presence of OC ($p=.032$).

Family history (positive N= 45 vs negative N= 49). Sequencing of Complex Motor Acts ($p=.05$) and Sensory Integration ($p=.016$) are significantly prevalent in patients without family history of schizophrenia.

Psychopathology (N= 94). Significant correlations emerged between: SANS total score and Motor Coordination ($p=.021$); Alogia and Motor Coordination ($p=.026$); Flat affect and Motor Coordination ($p=.046$); SANS total score and Sensory Integration ($p=.017$); Alogia and Sensory Integration ($p=.007$); Apathy and Sensory Integration ($p=.037$); Thought Disorder and Sequencing of Complex Motor Acts ($p=.048$).

CT measures of cortical and subcortical brain structures (N= 36). No significant correlations emerged.

Conventional and atypical neuroleptic treatments (Haloperidol N= 34; Risperidone N= 18; Clozapine N= 32; Olanzapine N=

10). Romberg test is higher in the haloperidol treated patients group ($p=.028$) and Tremor to the right is higher in the olanzapine treated patients group ($p=.037$).

Cannabis use (Consumer patients N= 25 vs No-consumer patients N= 25). NES total score ($p=.009$), Motor Coordination ($p=.002$), Complex Motor Acts ($p=.005$) and Sensory Integration ($p=.05$) are higher in the group of no consumer patients. The results suggest a substantial independence of NSS from considered variables. The evidence of the correlations with negative symptoms could be considered as a dysfunctional finding of structural alterations in deficit syndrome.

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Biochemical origin of the schizophrenia and of the behavioral pathologies of schizoid type

G. Chirieleison*. *Messina, Italy*

The complexity of the pathological mechanism of the schizophrenia is due to the diversifies biochemical expression. Nevertheless a common factor exists. It is identified in the enzymatic deficit, for genetic defect, in the biochemical formations and transformations, along the way to cascade of the signals of hormonal nature from the NSC to the final hormone. The NSC receives signals from the external surrounding and/ or from the internal "milieu", it analyzes them and orders triggering the system to cascade, for the secretion of the hormone from the organism required. The pathology is characterized from the deficit and/or from the alteration of one or more cerebral neurotransmitters among which the catecholamines, the serotonin and of the glucocorticoid cortisol hormone. Such deficit originates from an alteration or scarceness of genes that codify the synthesis of the enzymes delegated to their production and transformation (this is the common factor, the scarceness of enzymes synthesized from the genes, with the ambivalent consequence of a deficit, in comparison to that requirement of the organism, and of an inopportune production of abnormal metabolites might be produced: The adrenochrome that causes psychotic states and the dimetoxiphenylethylamine, a substance from the intermediate chemical structure between epinephrine and mescaline that has been found in the urines of schizophrenic patients (Piergiorgio STRATA 1991). The mescaline, whose property psicodislettiche are well known, besides, might be produced by chemical alteration of the dopamine and norepinephrine, similar substances structurally. The alteration of the epinephrine, of the norepinephrine, might to give place to the LSD or to a substance from the similar chemical structure. The synthesis of epinephrine might to remain blocked for scarceness of one or more enzymes in the followings biochemical transformations: 1) Tyrosine-dopa for scarceness of enzymes tyrosine hydroxylase 2) Dopa-dopamine for scarceness of enzymes L-aromatic amino acid decarboxylase 3) Dopamine-norepinephrine for scarceness of enzymes dopamine- β -hydroxylase 4) Norepinephrine-epinephrine for scarceness of enzymes phenylethanolamine N-methyl transferase. To follow of the deficit and/or altered productions of epinephrine, the NSC warns an inadequacy to the stress and orders to the adenohypophysis, by electrical/ chemical signals to the limbic system and from this to the hypothalamus, the production of ACTH. Besides, the removal of the feed negative back constituted from the scarceness of epinephrine causes an increase of ACTH production to leave out of consideration of the signal from the NSC induced. It is produced so in the organism an inopportune increase of hormones along the system of biochemical transformations beginning from the tyrosine, up to that hormone that cannot be synthesized for scarceness of the enzyme delegated to its synthesis, and a scarceness of the