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Electrophysiological mechanisms underlying ERP amplitude reduction in patients with schizophrenia: A time-frequency analysis

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Background It is hypothesized that the event-related potentials are generated by different electrophysiological mechanisms, i.e., event-related power increase and enhanced degree of phase-locking over trial. The study aimed to characterize the relative contribution of these mechanisms to the ERP in patients with schizophrenia (SCZ).

Materials and methods One hundred and fifteen chronic stabilized SCZ and 62 healthy controls (HC) recruited to the study of the Italian Network for Research on Psychoses were included. Scalp potentials were recorded during a standard auditory oddball task. Stimulus-locked segments were extracted for all standard trials and correctly hit target trials. Trials contaminated by other artifacts were rejected. For each subject and stimulus type the event-related spectral perturbation (ERSP) and the inter-trial-coherence (ITC) were computed to assess event-related power increase and inter-trial phase-locking. The two groups were compared using Student's *t*-test followed by Bonferroni correction for multiple comparisons. **Results** SCZ presented a reduced amplitude of both N100 and P3b. For both standard and target stimuli, at Cz and Pz, ERSP was reduced in SCZ in the delta-theta band (from 0 up to 400 ms). The ITC index, at the same channels, was reduced in SCZ in the delta band for standard stimuli (from 0 to 300 ms), and in both delta and theta bands for target stimuli (from 300 to 400 ms).

Conclusions Our results indicate that alterations of both mechanisms are involved in N100 and P3b amplitude reduction observed in SCZ. Inter-trial phase-locking abnormalities for N100 were limited to the delta band, while for P3b involved delta and theta frequencies.

Disclosure of interest The authors have not supplied their declaration of competing interest.

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Methylenetetrahydrofolate reductase (MTHFR) gene polymorphisms and antipsychotic-induced metabolic disturbances in first-episode schizophrenia patients

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Introduction There is a scarcity of prospective studies addressing the influence of the methylenetetrahydrofolate reductase (MTHFR)

gene polymorphisms on antipsychotic-induced metabolic changes in first-episode schizophrenia (FES) patients.

Objectives We aimed at investigating metabolic side effects of second-generation antipsychotics (SGAs) with respect to the MTHFR gene polymorphisms in FES patients.

Methods Polymorphisms in the MTHFR gene (C677T and A1298C) were investigated with respect to changes in body mass index (BMI) and waist circumference (WC) together with serum levels of glucose, lipids, homocysteine, vitamin B12 and folate after 12 weeks of treatment with SGAs in 135 FES patients.

Results The 677TT genotype was associated with significantly higher BMI, WC and serum levels of triglycerides, as well as significantly lower folate levels at baseline. Additionally, the 677T allele was associated with significantly lower folate levels at baseline. The 677CC homozygotes had significantly higher increase in BMI and serum levels of triglycerides. The 677TT genotype predicted significantly higher increase in homocysteine levels and significantly higher decrease in folate levels. These associations were also significant in the allelic analysis. Only the patients with the 677T allele had significantly lower folate levels and significantly higher homocysteine levels at the follow-up. The 677T allele was also related to significantly lower increase in WC. The 1298CC homozygotes had significantly higher weight gain in the course of treatment with SGAs.

Conclusions The MTHFR gene polymorphisms might predict antipsychotic-induced weight gain in FES patients. In addition, the MTHFR C677T polymorphism might be also predictive with respect to other metabolic adversities of SGAs.

Disclosure of interest The authors have not supplied their declaration of competing interest.

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Clinical symptomatology and theory of mind in schizophrenia: Which relationship?

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Introduction Theory of mind (ToM) has repeatedly been shown to be compromised in many patients with schizophrenia (SCZ). It now seems to be quite well-established that patients with profound negative or disorganized symptoms perform poorly on ToM tasks. By contrast, findings in patients with predominant positive symptoms are much more ambiguous.

Objectives To investigate the relationship between ToM deficits and different symptoms dimensions in SCZ.

Methods Fifty-eight outpatients with stable SCZ completed the intention-inferencing task (IIT), in which the ability to infer a character's intentions from 28 short comic strip stories is assessed. Symptomatology evaluation comprised the Positive and Negative Syndrome Scale (PANSS), the Calgary Depression Scale for Schizophrenia (CDSS) and the Clinical Global Impressions Scale Improvement and severity (CGI).

Results The number of correct answers in the IIT negatively correlated with both the positive ($P=0.015$) and negative ($P<0.0001$) scales of the PANSS. ToM deficits were correlated with the conceptual disorganization, hallucinations and the suspiciousness/persecution items.

The patients who had more false answers in the IIT also had significantly higher scores at the positive ($P=0.005$), negative ($P<0.0001$) and general ($P<0.0001$) scales of the PANSS. Worse IIT performance correlated with a higher severity index in the CGI. No correlations were found between IIT scores and CDSS scores.