

AS21-01 - ALTERATIONS OF THE EARLY AUDITORY EVOKED GAMMA-BAND RESPONSE IN PATIENTS WITH SCHIZOPHRENIA

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There is growing evidence of abnormalities of high-frequency oscillations in the gamma range of the electroencephalography in schizophrenia. The generation of neural activity in the gammaband was shown to be critically related to a glutamatergic and GABAergic microcircuit which is also known to be involved in the pathophysiology of schizophrenia. One example of such gamma oscillations is the early auditory evoked gamma band response (aeGBR). We aimed to investigate whether there are altered aeGBR and activity of its sources in the anterior cingulate cortex and/or the auditory cortex (identified as sources of the GBR previously) in schizophrenic patients and in first-degree relatives of schizophrenia patients.

We investigated the early aeGBR and its sources (LORETA source localisation) in 90 medicated patients with schizophrenia and in 17 unaffected first-degree relatives of patients with schizophrenia using an auditory reaction task (comparison with age-, gender- and educational-level-matched control groups).

Evoked power and phase locking of the aeGBR was reduced in schizophrenia patients and healthy first-degree relatives of patients with schizophrenia. This effect was due to a reduced activity in the auditory cortex and the anterior cingulate cortex. The findings are in line with the hypothesis of a disturbed GABAergic interneural modulation of pyramidal cells in schizophrenia and findings of different schizophrenia risk genes associated with transmission at glutamatergic and GABAergic synapses. The results regarding the first-degree relatives of patients with schizophrenia point to the applicability of this marker as a heritable intermediate phenotype for schizophrenia.