

HOW FIRST- AND SECOND-GENERATION ANTIPSYCHOTICS DIFFERENTIALLY IMPROVE ANTERIOR CINGULATE CORTEX (ACC) FUNCTION IN SCHIZOPHRENIC PATIENTS - AN EVENT-RELATED POTENTIAL STUDY

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Introduction/objectives: Second-generation antipsychotics (SGAs) are a frequently and effectively used treatment in schizophrenia and psychotic disorders. Other than First-generation antipsychotics (FGAs), which mainly exert their pharmacologic effect in subcortical dopaminergic systems, SGAs additionally affect partly serotonergically innervated structures within prefrontal areas, such as the Anterior Cingulate Cortex (ACC). However, only few controlled, randomized studies have so far investigated direct and indirect effects of SGAs on the ACC.

Aims: The present study investigated differential effects of one SGA (quetiapine) and one FGA (flupentixol) on the human action monitoring system.

Methods: ACC function in 18 quetiapine-medicated patients and 13 flupentixol-treated patients suffering from schizophrenia was assessed by means of the error-related negativity (ERN), a neurophysiological marker of ACC function, in a pre-post design.

Results: Between-group comparisons revealed different effects of quetiapine and flupentixol on ACC function despite similar improvement in psychopathology, cognitive performance and quality of life. Whereas SGA treatment was associated with an increase in amplitudes over time, there were prolonged ERN peak latencies in patients treated with the FGA. Moreover, treatment effects depended on baseline PFC function in both groups.

Conclusions: We conclude that both flupentixol and quetiapine improve prefrontal function especially in patients with weak initial ACC function which might be due to their shared affinity for 5HT-receptors in frontal brain regions. However, since this affinity is more pronounced for SGAs, patients treated with quetiapine seemed to profit more evidently concerning PFC function compared to patients of the flupentixol group, who exhibited a compensatory prolongation of processes.