

P01-162

INFLUENCE OF SUBANESTHETIC DOSE OF KETAMINE ON THETA CORDANCE IN HEALTHY VOLUNTEERS: IMPLICATIONS FOR ANTIDEPRESSANT EFFECT

M. Brunovsky^{1,2,3}, J. Horacek^{1,2}, M. Bares^{1,2}, T. Novak^{1,2}, B. Tislerova^{1,2}, P. Sos^{1,2}, V. Krajca³, C. Höschl^{1,2}

¹Prague Psychiatric Center, Praha, ²3rd Medical Faculty, Charles University, ³Dpt. of Neurology, Faculty Hospital Bulovka, Prague, Czech Republic

Aims: A series of clinical studies demonstrated that QEEG prefrontal theta cordance value decreases after one week of treatment in responders to antidepressants and precedes clinical improvement. Ketamine, a non-competitive antagonist of NMDA receptors, has a unique rapid antidepressant effect but its influence on theta cordance is still unknown.

Methods: In a double-blind, cross-over, placebo-controlled experiment we studied the influence of ketamine (0.54 mg/kg) on theta cordance in a group of 20 right-handed healthy volunteers. Participants were evaluated with the Brief Psychiatric Rating Scale before infusion and after 10 and 30 min. Three EEG segments obtained at baseline and prior to BPRS examinations at 10 and 30 min after dosing were entered into spectral analyses and QEEG cordance values in theta frequency band were calculated for four regions (prefrontal, central, left and right temporal).

Results: Ketamine infusion induced a decrease in prefrontal theta cordance at 10 ($p=0.04$) and 30 min ($p=0.02$) and a significant increase of theta cordance in central region at both time points ($p=0.01$). We observed no significant effect on cordance values in the left and right temporal regions.

Conclusions: Our data indicate that ketamine infusion immediately induces similar changes as monoaminergic-based antidepressants do gradually after a series of downstream signaling steps. The reduction in theta prefrontal cordance could serve as a marker of fast antidepressant effect of ketamine, a hypothesis that should be tested in antidepressant-refractory patients. This study was supported by a grant of IGA MHCR NR/9330-3 and by a project of MEYS CR VZ0021620816.