

($P=0.001$ and $P<0.0001$, respectively). Moreover, the plasma concentration of risperidone and risperidone/9-hydroxyrisperidone ratio in the patients with CYP2D6 activity score 0.5 were significantly higher than those with the CYP2D6 activity score 2.0 ($P=0.004$ and $P=0.002$, respectively).

Discussions The present study suggests that it would be ideal to identify the CYP2D6 genotype of patients before prescribing and administering risperidone. Furthermore, the use of CYP2D6 gene scoring system to determine an individual's metabolic capacity may become an essential tool for a more rational and safer drug administration.

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

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FC58

Angiotensin II type 1 receptor blockade diminishes negative effect of chronic stress on memory via upregulation of brain-derived neurotrophic factor

D. Wincewicz^{1,*}, A. Juchniewicz²

¹ Medical University of Bialystok, Department of Clinical Pharmacology, Bialystok, Poland

² Medical University of Bialystok, Department of Clinical Molecular Biology, Bialystok, Poland

* Corresponding author.

Introduction A critical need exists for progress in the characterization of targets for pro-cognitive drug discovery. We previously demonstrated that Telmisartan (TLM), an angiotensin type 1 receptor (AT1) blocker and partial agonist of peroxisome proliferator-activated receptor gamma (PPAR γ), alleviates cognitive decline in chronically stressed rats. Understanding of mechanistic background of this phenomenon is hampered by both dual binding sites of TLM and limited data on the molecular consequences of central AT1 blockade and PPAR γ activation.

Objectives To discriminate molecular effects of AT1 blockade and PPAR γ activation in stress induced memory impairment.

Aims In this study, we investigated mechanism of neuroprotection provided by TLM in chronic psychological stress.

Methods We analyzed BDNF gene expression in the hippocampus (HIP) and medial prefrontal cortex (mPFC) in chronically restrained stressed Wistar rats (2.5 h, 21 days), repeatedly treated

with TLM (1 mg/kg), GW9662 (0.5 mg/kg) – a selective PPAR γ receptor antagonist, or both in combination. TATA box binding protein (Tbp) was an internal control for expression studies.

Results Alterations of mRNA expression of BDNF are shown on Figs. 1 and 2.

Conclusions AT1 receptor blockade restores cognitive functions in chronically stressed subjects, which is associated with changes in primarily cortical gene expression.

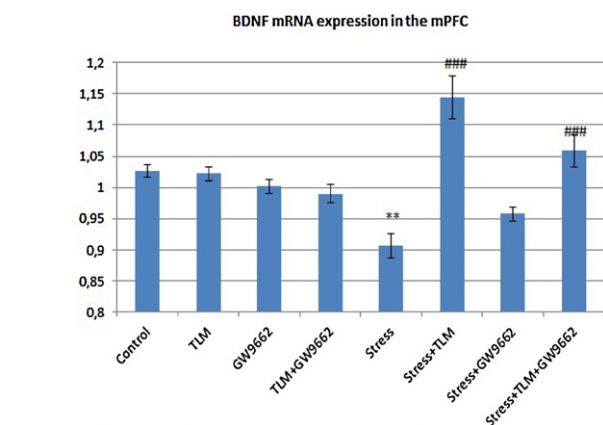


Fig. 1 Effect of chronic stress (2.5 h, 21 days), chronic TLM (1 mg/kg, 21 days), chronic GW9662 (0.5 mg/kg, 21 days) or all in combination on mRNA BDNF expression in the mPFC (BDNF/Tbp ratio). Bars represent mean \pm SEM; $n=5$; ** $P<0.01$; Control vs. Stress; ### $P<0.001$ Stress vs. Stress + TLM and Stress vs. Stress + TLM + GW9662.

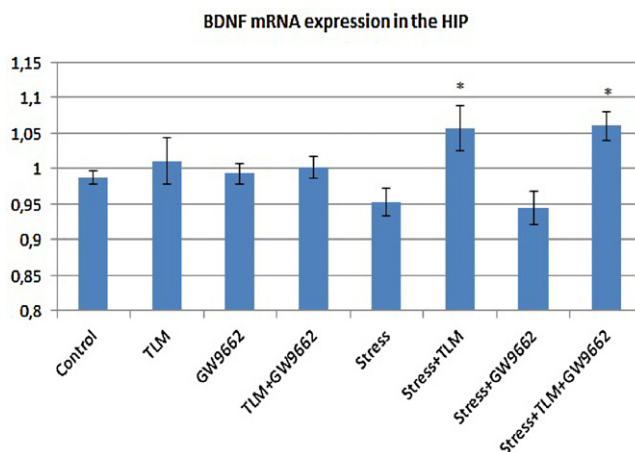


Fig. 2 Effect of chronic stress (2.5 h, 21 days), chronic TLM (1 mg/kg, 21 days), chronic GW9662 (0.5 mg/kg, 21 days) or all in combination on mRNA BDNF expression in the HIP (EDNF/Tbp ratio). Bars represent means \pm SEM; $n=5$; * $P<0.05$; Stress vs. Stress + TLM and Stress vs. Stress + TLM + GW9662.

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

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Psychosurgery and stimulation methods (ECT, TMS, VNS, DBS)

FC59

Neuropsychiatric consequences of deep brain stimulation surgeries in the patients affected by chronic movement disorders: A brief report

S. Mahdavi^{1,*}, S.K. Malakouti², B. Naji², M. Asadi¹, S. Kahani³

¹ Iran University of Medical Sciences, psychiatry, Tehran, Iran

² School of Behavioral Sciences and Mental Health, Iran University of Medical Sciences, psychiatry, Tehran, Iran

³ Rasoul Akram Hospital, Iran University of Medical Sciences, psychiatry, Tehran, Iran

* Corresponding author.

The main surgical procedure for PD and other chronic movement disorders is deep brain stimulation. DBS has been reported to have specific consequences such as decline in verbal fluency and episodes of depression.

We designed an interventional study in 12 patients affected by Parkinson, dystonia and tic who underwent DBS surgery. Patient assessed before surgery, one month and one year after surgery. The results proved a significant improvement in SF36. The Hamilton's anxiety scale showed an overall but insignificant improvement. The mean of scores of the BDI had a great drop one

month after surgery but a raise at the 12th month (insignificant pattern).

Pearson's correlation test showed a significant negative correlation between age and the SF36 scores. The BDI's scores were assessed in relation with age. Although there was no actual relation between them before surgery, we detected a positive correlation between them after one year.

Conclusion The pattern of changes can be related with the differences between perioperative expectations and real long-term outcomes. Correlations between changes seen in BDI and SF36 scores with age can be considered as a confirmatory evidence for this idea.

All cases showed an insignificant gradual decline in digit span test, which may be independent of the surgical procedure. Although the COWA test could not prove a significant deterioration in verbal fluency but a slight decline after one year was obvious, in addition to one patient who turned aphasic during this period.

The outcomes showed that the benefits of DBS outweigh the slight risk of developing depression.

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FC60

Transcranial direct current stimulation in treatment – resistance unipolar major depressive disorder

M. Asadi*, S. Mahdavi

Tehran University of medical science, psychiatry, Tehran, Iran

* Corresponding author.

Objective MDD is a common, chronic and recurrent illness. It is essential to reach full remission in acute treatment. tDCS is a non-invasive brain stimulation that uses direct electrical currents to stimulate specific parts of the brain.

Aim Is to assess the effectiveness of tDCS in patients with treatment resistance MDD.

Method Eighty outpatients of a psychiatric clinic were selected. Subjects meet (DSM-IV) diagnostic criteria for MDD. All patients had failed to respond to at least two standard antidepressant medication, in the current episode. Patients with bipolar depressive disorder, MDD with psychotic and atypical features, other psychiatric disorders, severe medical condition, acute suicidality and pregnancy were excluded. All patients received stable drug regimens for at least two weeks before enrollment and drug dosages remained unchanged throughout the study. They revised 8 stimulation sessions, using a 2 mA current, for 20 minutes, in 8 consecutive days. The anodal electrode was placed over the left DLPFC. Cathode electrode over the right supraorbital region. Mood was evaluated with 21-item Hamilton Rating Depression Scale and the Beck Depression Inventory.

We designed a pretest–posttest study and evaluate depression at baseline (pre-intervention), immediately after 8 sessions (post-intervention) and two months after treatment onset (follow-up).

Results There is a significant difference between Pre- vs. post-intervention ($F_{BDI} = 246.58$, $P < 0.001$; $F_{HRSD} = 214.56$, $P < 0.001$) and pre vs. follow-up intervention ($F_{BDI} = 323.10$, $P < 0.001$; $F_{HRSD} = 150.96$, $P < 0.001$).

Conclusion It can be said that tDCS had effective and enduring variation ($P_{post\ vs.\ follow-up} > 0.05$) in improving the clinical symptoms of MDD.

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

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FC61

Cryostimulation of whole body as a possible supportive biological approach in mild cognitive impairments

J. Rymaszewska*, D. Szczesniak, U. Katarzyna, T. Elzbieta, S. Bartlomiej

Wroclaw Medical University, Division of Consultation Psychiatry and Neuroscience, Wroclaw, Poland

* Corresponding author.

Background Limitations of available treatment methods of dementia imply constant need to search for new, supplementary therapy strategies. There is a consensus that vascular lesions, oxidative stress, inflammatory processes and abnormal neurotransmission are associated with dementia. Due to the anti-inflammatory (modification of pro-inflammatory cytokines concentration), antioxidative effect of cryogenic temperatures as well as the hormonal and lipid changes, they may play an important role in preventing or inhibiting pathophysiological processes.

Aim To assess the influence of whole-body cryostimulation on cognitive functions of patients with MCI.

Methods RCT design is used to examine the influence of whole-body cryotherapy (WBC) on people with mild cognitive impairments (MCI) with the evaluation of psychometric, somatic and laboratory parameters. Participants undergo 10 sessions each day of 2–3 min of WBC in experimental group (-110 till -160°C) and placebo (-20°C). The CDR, MoCA, TYM, DemTect and SLUMS scales are used among others at baseline and follow-up. Preliminary data of 7 volunteers ($n = 7$, 49–79 years old) were presented. Results on Fig. 1.

Discussion Among obtained psychometric results show that all, except of one, patients significantly improved their scores after WBC. That is a very promising feedback for future evaluation of WBC effectiveness in prevention of dementia in patients with MCI.

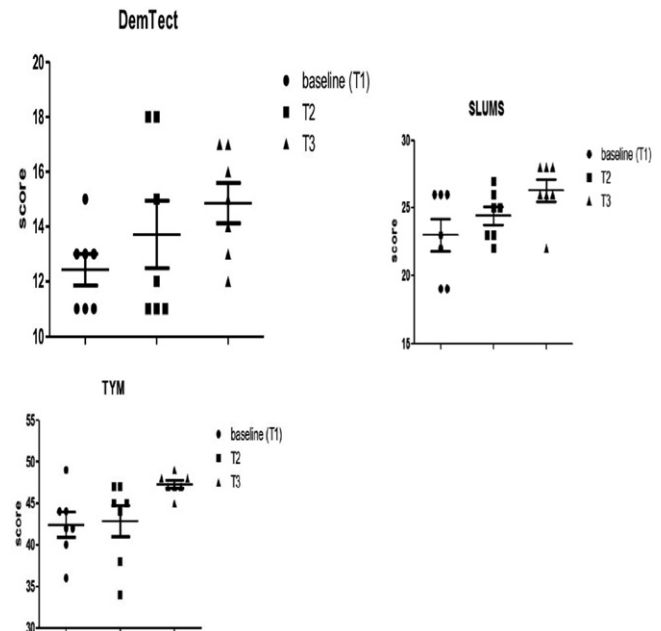


Fig. 1

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