



## Editorial

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## EDITORIAL

Dear colleagues,

I am delighted to present to you our fourth issue of 2014 covering latest research on the therapeutic use of noninvasively brain stimulation methods, cognitive and biological characteristics in eating disorders as well as probable long-term effects of stress.

A review of Mondino and colleagues aimed at evaluating whether **transcranial direct current stimulation** (tDCS) has potential to evolve as an innovative treatment in psychiatry. The authors explored the current state of development and application of tDCS in various psychiatric disorders, and investigated **clinical and cognitive effects**. Results revealed beneficial effects, however, the significance of tDCS among other treatments still has to be determined before becoming a routine clinical treatment.

Langguth and colleagues scrutinized effects of **repetitive transcranial magnetic stimulation** (rTMS) in chronic **tinnitus**. The authors found the number of treatment responders to be higher for temporal rTMS and combined frontal and temporal rTMS as compared to sham and conclude that especially the **combined frontal and temporal rTMS protocol elicits effective symptom reduction**.

In order to investigate the relationship between subgenual anterior cingulate cortex (sgACC) functional connectivity changes and clinical efficacy of accelerated rTMS in **treatment resistant unipolar depression**, Baeken and co-workers conducted a randomized, sham-controlled treatment study. Resting state functional magnetic resonance imaging (MRI) were collected at baseline and at the end of rTMS treatment. The authors found **treatment responders to have stronger functional connectivity anti-correlation between sgACC and parts of the left superior medial prefrontal cortex** compared to non-responders.

Harel and colleagues examined the safety and feasibility of rTMS as a long-term/continuation treatment for major depressive disorder (MDD). Decreases were found in depression scores from baseline to the end of 4 weeks of acute treatment and maintained until the end of the total treatment period of 22 weeks. Results suggest **long-term efficacy of deep rTMS in MDD**.

Heralding our second topic, Radeloff and colleagues set out to investigate neuronal pathways that may contribute to altered fat consumption in eating disordered patients. For this purpose, the authors used **functional MRI** (fMRI) to compare responses

to a high-fat cream stimulus, water, and a non-caloric viscous stimulus in patients recovered from anorexia nervosa (AN), bulimia nervosa (BN) and a healthy control sample. Results revealed that **BN showed an exaggerated anterior ventral striatum response** for the cream/water contrast in comparison to AN, which is interpreted as **support of the possibility that BN have an altered hedonic and/or motivational drive to consume fats**.

Goddard and colleagues examined putative **neurocognitive intermediate phenotypes of eating disorders** in affected males. By examining cognitive flexibility, central coherence, complex emotion recognition and social threat sensitivity, the authors found men with eating disorders to be **more cognitively inflexible** and to have **more difficulty integrating global information** than healthy men. Furthermore, men with eating disorders had higher scores on measures of distress, perfectionism and obsessive compulsivity than healthy men.

Tremolizzo and colleagues measured DNA methylation that is epigenetically regulating gene expression in adolescent patients with restrictive type AN and assessed its significance in clinical and hormonal variables. Results showed that **whole-blood global DNA methylation was modestly reduced in AN patients** compared to controls, **correlating with plasma leptin and steroid hormone levels**. Clinical variables, such as symptom severity and associated states and traits, did not correlate with the outcome variable.

Introducing our third topic, Perroud and colleagues explored the mechanisms of transmission of parental post-traumatic stress disorder (PTSD) to offspring. The authors measured PTSD and depression severity, plasma cortisol, glucocorticoid and mineralocorticoid receptor levels and methylation status of NR3C1 and NR3C2 promoter regions in women exposed to the Tutsi genocide during pregnancy, their children, as well as women, pregnant during the same period, but not exposed to the genocide, and their children. **PTSD was found to be associated with NR3C1 epigenetic modifications** that were similarly found in mothers and their offspring. The authors draw the conclusion that these modifications **may underlie a possible transmission of biological alterations of the HPA axis**.

In a brief report, Sarkar and colleagues investigated associations between maternal prenatal stress and both white matter microstructure in offspring.

In a prospective design, the authors used **diffusion tensor imaging** (DTI) in children of mothers recruited during pregnancy and calculated correlations between prenatal stressful life events and several microstructural indices of the uncinate fasciculus and a control tract. The authors found only **microstructural properties of the right uncinate fasciculus to be associated with prenatal stress**.

The authors suggest that these associations may underlie variations in child social behaviour.

Yours sincerely,

Siegfried Kasper, MD  
Chief Editor