BRAIN STIMULATION TECHNIQUES: NON-INVASIVE TREATMENTS FOR DEPRESSION

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Nowadays there is an increasing interest on brain stimulation techniques as therapeutic tools in psychiatric disorders. One of the most promising results has been obtained in depression treatment. In fact, some countries have approved the use of transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS) as treatments for depression (European Union, Canada, Australia, New Zealand, Unites States and Israel).

It is well known that both high frequency repetitive TMS (rTMS) and anodal tDCS over the left dorsolateral pre-frontal cortex (DLPF), are effective in decreasing depressive symptoms and they have lasting beneficial effects. First evidence of benefits of rTMS on depression was published by Pascual-Leone and co-workers in 1996 (Pascual-Leone et al., 1996). These results have been supported by others, both using rTMS (e.g. Anderson et al., 2009; George et al., 2010) and tDCS (e.g. Boggio et al., 2008; Rigonatti et al., 2008). On the other hand, later studies showed that low frequency rTMS over right PFDL cortex is also effective in depression improvement (Kauffmann, Cheema y Miller, 2004).

In addition, both techniques have reported good results as treatment of secondary depression associated with Parkinson, epilepsy and brain damage (Fregni et al., 2004; Fregni et al., 2005; Jorge et al., 2004). Recent revisions and meta-analysis corroborates TMS and tDCS efficacy (e.g.: Slotema et al., 2010), always considering that their efficacy depends on several factors, such as the length of the current depression episode, age of patient, length of the treatment, stimulation intensity or number of pulses per session.

References:


10. Slotema CW, Blom JD, Hoek HW, Sommer IE. Should we expand the toolbox of psychiatric treatment methods to include Repetitive Transcranial Magnetic Stimulation (rTMS)? A meta-analysis of the efficacy of rTMS in psychiatric disorders. J Clin Psych

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