Deep Brain Stimulation (DBS) in the subgenual cingulated (Cg25) has revealed as a new and promising innovative technique that may be able to provide sustained remission in resistant major depressive disorder. However, the first clinical series have reported an initial large effect followed by a decay in the first month of treatment. Thus, the aim of this study was to examine the effect of the electrical brain stimulation and the electrodes implantation in a translational study.

**METHODS**

Male *Wistar* rats weighing 200–250 g. The electrodes of stimulation were implanted bilaterally into the **infra- limbic cortex** (the rodent Cg25 correlate). The stimulation protocol was 100 µA, 130 Hz and 90 µsec (Hamani et al. 2010). The modified Forced Swimming Test (mFST) were used as a model predictive of antidepressant-like effect (Detke et al. 1995). Spontaneous locomotor activity was also analyzed.

**Immunohistochemistry** procedure were performed against to GFAP (Glial fibrillary acidic protein) and iNOS (Inducible nitric oxide synthase) in the IL cortex.

**Drugs** Imipramine (15 mg/kg, i.p., 1/5h after pre-test and 2h before test); para-chlorophenyl-alanine methyl ester (pCPA, 100 mg/kg, i.p. 3 days before test); indomethacin (INDO, 1 mg/kg, i.p.) and acetaminophen (APAP, 100 mg/kg, i.p.) both once daily from 2 days before the surgery until the mFST.

**Clinical studies.** The patient group underwent bilateral DBS in Cg25 was comprised of 8 patients with refractory major depression. The clinical outcome of the first month of Cg25 DBS in patients was quantified. Depressive symptoms were rated according to the HDRS-17.

**PRECLINICAL RESULTS**

- **Antidepressant-like effect of DBS and electrode implantation in IL cortex one week after the surgery in mFST**

- **Antidepressant-like effect is not due for changes on spontaneous locomotion and is mediated by the serotonergic system**

- **The effect of electrode implantation was self-limiting over the time**

**CLINICAL RESULTS**

- **Analgesic-antiinflammatory treatment on patients blocked the early antidepressant effect of DBS**

**CONCLUSIONS**

Our study shows that electrode implantation is sufficient to produces an early antidepressant-like effect in rats in the mFST. Moreover, both preclinical and clinical findings suggest that the use of anti-inflammatory drugs after electrode implantation may attenuate the early antidepressant response.