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Introduction Repetitive transcranial magnetic stimulation (rTMS) is a neurostimulation technique used in many indications, especially in psychiatry in the treatment of mood disorders. Although its efficacy in this treatment has been demonstrated, the study of predictive response factors currently remains a major challenge.
Method We conducted a retrospective study from the cohort of treatment-resistant depressed patients that received rTMS treatment in Esquirol Hospital in Limoges in order to identify response predictors at three months. Of the 416 patients treated between January 2007 and November 2015, 107 subjects have been included. The clinical characteristics of responders and non-responders at three months after treatment, but also at the end of treatment and after one month were compared. Predictors of clinical improvement objectified by the Hamilton Depression Rating Scale (HDRS) were identified using a logistic regression model.
Results In our cohort, the response rates were 52% at the end of treatment, 61% at 1 month and 57% at 3 months. Psychiatric family history and the recurrence of thymic episodes were found to be negative predictors of response to rTMS treatment. Similarly, high subscore of depression core symptoms in HDRS could also predict a poorer response.
Conclusion Our data from a naturalistic cohort tended to prove that a number of clinical features should be taken into account in determining the profile of the treatment-resistant depressed patients that could respond to rTMS treatment.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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EW0777

Prolonged theta burst stimulation: A novel rTMS paradigm in neuropsychiatry

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Introduction Repetitive transcranial magnetic stimulation (rTMS) has important role in treatment of neuropsychiatric disorders. Theta burst stimulation (TBS), a modification of rTMS, seems to produce greater changes in cortical excitability (CE) than those observed in conventional rTMS protocols. TBS is used in different protocols: intermittent TBS (iTBS) and continuous TBS (cTBS). While iTBS facilitates CE, cTBS leads to CE inhibition. However, a prolonged cTBS produces facilitatory effect similar to that of iTBS. Prolonged TBS (pTBS), a novel rTMS paradigm, is of great clinical interest for its short duration, but also because it may induce stronger effect.
Aim To prove the effect of pTBS of motor cortex on changes of motor threshold (MT), CE and pain threshold (PT) in healthy volunteers (HV). To compare the effects of two different forms of active pTBS (pcTBS, piTBS) with placebo.
Methods A double-blind, placebo-controlled, cross-over study compared the effects of different pTBS of contralateral M1 area on MT, CE and PT. We enrolled 24 HV to the study, who underwent all types of pTBS in randomized order and were assessed before and after each pTBS application. We used MagPro R30 (with coil focused to contralateral M1 area, 1200 pulses/session, 90% MT).
Results A significant changes in CE and MT were found after application of continuous pTBS. Intermittent and placebo pTBS did not confirm the effect. There were no significant changes on PT after pTBS. Continuous pTBS was better tolerated than intermittent pTBS.
Conclusion pTBS should be considered as an effective and safe treatment option for neuropsychiatric disorders.
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Transcranial direct current stimulation: Adverse effects and the efficacy of a commonly utilised sham protocol

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Introduction Transcranial direct current stimulation (tDCS) is a promising neuromodulation method that has, for example, been used to treat depression. Nevertheless, the adverse effects of tDCS and the validity of the current standard tDCS sham protocols have received limited attention.
Objectives To evaluate the extent and types of tDCS adverse effects and to assess the reliability of sham stimulation as a control procedure for tDCS in a double-blind setting.
Aims To compare adverse effects between tDCS and sham stimulation groups, and to determine how well the participants and the experimenter are able to distinguish tDCS from sham stimulation.
Methods A sample of healthy volunteers received a 20-minute session of either tDCS ($n = 41$; 2 mA) or sham stimulation ($n = 41$; ramp up 15 s, ramp down 15 s; no current in between). The anode was placed over F3 and cathode over F4. Both the participants and the experimenter reported immediate adverse effects and the perceived likelihood for the participant to receive tDCS. Analyses were conducted using the Mann–Whitney U-test.
Results The tDCS group reported more erythema compared with the sham group ($P = 0.016$, Cohen's D = 0.444). No other significant differences in adverse effects were observed. In the tDCS group, both the participants ($P = 0.034$, Cohen's D = 0.612) and the experimenter ($P = 0.006$, Cohen's D = 0.674) reported a higher perceived likelihood of the participant receiving tDCS than in the sham group.
Conclusions tDCS has only modest adverse effects. Nevertheless, the current standard sham protocol appears insufficient.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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EW0779

From theory to practice: The contribution of John Farquhar Fulton (1899–1960) to psychosurgery

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Introduction John Farquhar Fulton was an American neurophysiologist and historian, who pioneered psychosurgery based on animal experiments. Together with psychologist Carlyle Jacobsen, Fulton presented the results of bilateral frontal lobe ablation in chimpanzees. This study prompted neurologist Egas Moniz and neurologist Walter Freeman to perform similar brain surgery on human subjects.
Objectives To present the scientific papers of John Farquhar Fulton on psychosurgery.
Aims To review available literature and to show evidence that John Farquhar Fulton made a significant contribution to the development of psychosurgery.
Methods A biography and research papers are presented and discussed.
Results Fulton and Jacobsen experimented with 'delayed response tasks' in chimpanzees. The aim was to test the animal's capability to memorize the correct location of the food. They found that after sequential ablations of the left and right frontal association cortices these memory tasks became significantly difficult for the monkeys to perform. The researchers saw parallel conclusions in clinical cases of human frontal lobe damage.
Conclusions An investigation into the role of the limbic system is one of the crowning achievements of John Farquhar Fulton, as this has influenced even today's thinking about the role of the limbic system. We should thank Fulton for his pioneering work as modern psychosurgery has gradually evolved from irreversible ablation to reversible stimulation techniques, including deep brain stimulation.
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EW0780

Analysis of ECT indications in the hospitalized psychiatric patients

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Introduction Electroconvulsive therapy (ECT) has been considered a treatment option for the treatment resistance, mania, depression, suicidality and schizophrenia. It has been still controversial due to the lack of controlled clinical trials and unknown biological basis but also because of the negative image from the history of the treatment.
Objective Specifics of the clinical judgement on when and for which patients' indications, ECT was a treatment choice.
Aim of the study was to evaluate indications for the ECT treatment in the hospitalized psychiatric patients at the psychiatric department.
Method For all the patient cases in the last 7 years at the department ($n = 326$), data was analyzed regarding age, gender, number of hospitalizations, age of first episode, diagnose, previous treatment, leading indication for ECT and outcome after the ECT, regarding following treatment.
Results The leading indication for ECT was psychosis and/or pharmacological treatment resistance, followed by suicidality. Patients with psychosis were younger than patients with other diagnoses when receiving ECT treatment. Regarding the results, indications for ECT had been partially differentiated from expected guidelines. Outcomes after the ECT were favorable in terms of better controlling the symptoms, lowering exacerbation frequency and intensity and partially, functioning.
Conclusion Studies on ECT indications and outcome could provide further insight on efficacy of the treatment, and possible improvements in clinical assessment on eligible patients who could benefit from the ECT treatment.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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EW0781

A systematic review and meta-analysis of the mortality rate of electroconvulsive therapy (ECT)

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Introduction Electroconvulsive therapy (ECT) is an efficacious treatment for many mental disorders, but is underutilized because of fears of adverse effects, including the risk of death.
Objectives and aims To provide a full picture of the magnitude of ECT-related mortality worldwide.
Methods We performed a systematic review and meta-analysis (PubMed and Embase) in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline. Only publications reporting on a specific number of ECT treatments as well as specific number of ECT-related deaths were included in our analysis. The ECT-related mortality rate was calculated by dividing the total number of ECT-related deaths by the total number of ECT treatments. The 95% confidence interval (95% CI) of this estimate was calculated using Bernoullis principle of distribution.
Results Fourteen studies with data from 32 countries reporting on a total of 757,662 ECT treatments met the predefined inclusion criteria. Fifteen cases of ECT-related death were reported – yielding an ECT-related mortality rate of 2.0 per 100,000 treatments (95% CI: 1.0–3.0). In the eight studies published after 2001 (covering 406,229 treatments), no ECT-related deaths were reported.
Conclusions The ECT-related mortality rate was estimated at 2 per 100,000 treatments. For comparison, a recent meta-analysis on the mortality of general anaesthesia in relation to surgical procedures reported a mortality rate of 3.4 per 100,000. Thus, our systematic review and meta-analysis documents that death caused by ECT is extremely rare. This information can be used to reassure patients in need of ECT.
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EW0782

The changes of social performance with transcranial magnetic stimulation (TMS) in depressed patients

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