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Symposium: Modifying outcomes of ADHD across the lifespan

S082

Continuity of ADHD across the lifespan

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Introduction For many years ADHD was thought to be a childhood onset disorder that has limited impact on adult psychopathology. However, the symptoms and impairments that define ADHD often affect the adult population, with similar responses to drugs such as methylphenidate, dexamphetamine and atomoxetine to those seen in children and adolescents. As a result, there has been a rapidly increasing awareness of ADHD in adults and an emergence of new clinical practice across the world. Despite this, treatment of adult ADHD in Europe and many other regions of the world is not yet common practice and diagnostic services are often unavailable or restricted to a few specialist centres.
Objective Here we address some of the key conceptual issues surrounding the continuity of ADHD across the lifespan, with a focus relevant to practicing health care professionals working with adult populations.
Conclusions We conclude that ADHD should be recognised within adult mental health in the same way as other common adult mental health disorders. Failure to recognise and treat ADHD will be detrimental to the well being of many patients seeking help for common mental health problems.
Disclosure of interest The author declares that he has no competing interest.

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S083

Non-Pharmacological treatment of ADHD across the lifespan

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Attention Deficit Hyperactivity Disorder (ADHD) is a serious risk factor for co-occurring psychiatric disorders and negative psychosocial consequences over the lifespan. Given this background, there is a need for an effective treatment of ADHD patients.
In the lecture, evidence-based psychosocial interventions for ADHD will be presented.
Disclosure of interest Books and articles on ADHD.
Ad Boards, Phase-III Studies on ADHD in the last five years.

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Symposium: Non-Invasive brain stimulation: From mechanisms to applications

S084

Does transcranial electrical stimulation induce changes in peripheral physiology?

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Transcranial electrical stimulation (tES) is a non-invasive brain stimulation method that has evoked increasing interest during the past years. The most common form of tES, transcranial direct current stimulation (tDCS), is considered to modulate neuronal resting potentials. For example, anodal stimulation over motor cortex appears to lead to increased neuronal excitability under the stimulation electrodes. However, some recent findings suggest that the effects of tDCS extend beyond the cortical areas under the electrodes, to deeper brain structures such as the midbrain. The brain also actively regulates peripheral physiology. Thus, changes in brain activity following tES may lead to modulation of peripheral physiology. For example, tDCS targeting primary motor cortex has been observed to induce changes in peripheral glucose metabolism. Furthermore, stimulation of dorsolateral prefrontal cortex has been shown to lead to alterations in cortisol secretion and the activity of the autonomic nervous system. Unpublished findings from our group corroborate with the above observations. Nevertheless, the evidence regarding peripheral effects of tES remains limited. Investigating such possible effects may be relevant especially from the point of view of tES safety and potential therapeutic discoveries.
Disclosure of interest The author has not supplied his declaration of competing interest.

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S085

The effect of prefrontal transcranial direct current stimulation on resting state functional connectivity

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Transcranial direct current stimulation (tDCS) of the prefrontal cortex (PFC) is currently investigated as therapeutic non-invasive brain stimulation (NIBS) approach in major depressive (MDD) and other neuropsychiatric disorders. In both conditions, different sub regions of the PFC (e.g. the dorsolateral prefrontal cortex, the dorsomedial prefrontal cortex and others) are critically involved in their respective pathophysiology. Although the neurophysiological properties of tDCS have been extensively investigated at the motor cortex level, the action of PFC tDCS on resting state and functional MRI connectivity of neural networks is largely unexplored. Beyond motor cortex paradigms, we aim to establish a model for PFC tDCS modulating functional connectivity in different conditions to provide tailored tDCS protocols for clinical efficacy studies in major psychiatric disorders such as MDD and schizophrenia. One major obstacle in brain research is that patients represent themselves as individuals not as groups. Recent research has shown that the individual human brain functional MRI connectivity shows different within-variability than the variability found between subjects. Several neuroimaging methods may be useful to find a classifier that can be reliable used to predict NIBS effects. These neuroimaging methods include individual brain properties as well as the evaluation of state-dependency. Anatomical targeted analyses of rTMS

and tDCS in neuropsychiatric patients and healthy subjects have found promising results.
By combining neuroimaging and NIBS new functional models can be developed and compared in different health and pathology states, e.g. in the development of any given psychiatric disorder.
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S086

Cognitive enhancement in young healthy subjects using non-invasive brain stimulation and cognitive training

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Transcranial electrical stimulation (tES) is being widely investigated to understand and modulate human brain function. The interest in using tES to enhance cognitive abilities not only in patient populations but also in healthy individuals has grown in recent years. Specifically in combination with cognitive training tES has shown success in enhancing cognition. However, to date, we still know little about the impact of interindividual differences on intervention outcomes. A variety of tES techniques and their effects in combination with cognitive training, interactive effects of tES with baseline cognitive abilities and neurophysiological traits will be presented and following ramifications with regards to the development of individualised stimulation protocols will be discussed.
Disclosure of interest The author has not supplied his declaration of competing interest.

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S087

Corticospinal excitability predicts antidepressant response to rTMS

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Repetitive transcranial magnetic stimulation (rTMS) targeting the left dorsolateral prefrontal cortex (DLPFC) is a treatment option for patients with medication-resistant major depressive disorder (MDD). However, antidepressant response is variable and there are currently no response predictors with sufficient accuracy for clinical use. Here we report on results of an observational open-label study to determine whether the modulatory effect of 10 Hz motor cortex (MC) rTMS is predictive of the antidepressant effect of 10 Hz DLPFC rTMS. Fifty-one medication-resistant MDD patients were enrolled for a 10-day treatment course of DLPFC rTMS and antidepressant response was assessed according to post-treatment reduction of the 17-item Hamilton Rating Scale for Depression score. Prior to treatment, we assessed the modulation of motor evoked potential (MEP) amplitude by MC rTMS. We measured MEP's to single pulse TMS using surface electromyography, before and after MC rTMS, and calculated MEP modulation as the change of mean MEP amplitude after MC rTMS. MEP modulation proved to be a robust predictor of reduction of clinician-rated depression severity following the course of DLPFC rTMS: larger MC rTMS-induced increase of corticospinal excitability anticipated a better antidepressant response. These findings suggest that MC rTMS-induced modulation of corticospinal excitability warrants further evaluation as a potential predictive biomarker of antidepressant response to left DLPFC 10 Hz rTMS, and could inform future developments of rTMS to treat depression.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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Symposium: Staging of psychiatric disorders: Integrating neurobiological findings

S088

Staging in bipolar disorder: Clinical, biochemical, and functional correlates

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In the field of bipolar disorder, some proposals of a staging model have been suggested considering the progressive features of the disorder. The staging model regards special features of the patients and further draws a route to define the prognosis and treatment as well as the neurobiological background of the disorder. The aim of this model is to identify rational therapeutic targets and provide the most effective and less toxic intervention in a time-sensitive manner. Advocating for a model of staging in bipolar disorder that can group the patients according to quantitative cut-offs of common practice clinical variables as well as defining a biochemical correlation seems to be a further step towards an operative and valid model of staging in bipolar disorder.
Disclosure of interest Dr. I. Grande has received a Juan Rodés Contract (JR15/00012), Instituto de Salud Carlos III, Spanish Ministry of Economy and Competiveness, Barcelona, Spain and has served as a consultant for Ferrer and as a speaker for AstraZeneca, Ferrer and Janssen-Cilag.

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S089

Staging & profiling in addiction, can we cross the gap from bench to bedside?

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Addictive behaviours are highly common (prevalence worldwide about 10%), with major impact on the individual and society (contributing to 5% of overall DALYs and mortality) [1,2]. Though a number of evidence-based treatments are available, relapse rates remain high, up to 50% within one year of treatment [3,4]. Staging of addictive behaviors might contribute to improve this prognosis by indicating which patient could benefit most from which treatment modality.
In DSM-5 clinical staging of addictive disorders is limited to grading the severity of the disorder, based on criterion counts [5]. However, addictive disorders are highly heterogeneous, with distinct clinical profiles and neurobiological underpinnings of the disorder. Reward-processing deficits are considered a hallmark of addiction. Several additional neurobiological deficits have been identified in addicted individuals, such as dysfunction of brain stress systems, anterior cingulate cortex and habenula.
These neurobiological deficits may identify clinical subgroups of patients with distinct pathophysiology (profiling), or be related to progression of the disorder (staging). This presentation will focus