Speaker 3: Se Hyun Kim, Republic of Korea

Title: Targeted profiling for the metabolic syndrome

Abstract

Translational researches in schizophrenia have revealed the many aspects of biological evidence for schizophrenia. To find the intracellular signaling pathway responsible for antipsychotic medications, metabolic adverse events induced by atypical antipsychotics can provide a window to look for the novel molecular target mediating the therapeutic action of antipsychotics. Mammalian target of rapamycin (mTOR) is master switch regulating protein translation through sensing cellular energy state. Akt and mitogen activated protein kinase (MAPK) pathways cooperatively regulate mTOR signal pathway. In addition, AMP-activated protein kinase (AMPK), another major metabolic sensor maintaining metabolic homeostasis, interacts with mTOR to regulate the cellular response to various stimuli. Recent studies have suggested that mTOR signal pathway is involved in mood and psychotomimetic behavioral changes as well as epileptogenesis. In this talk, involvement of mTOR and AMPK signal pathways in the therapeutic and pathogenetic mechanisms of psychotic disorders will be reviewed and discussed based on the recent findings.

Speaker 4: Hans-Jürgen Möller, Germany

Title: Signatures from neuroimaging studies predict transition to psychosis

Möller HJ, Koutsouleris N, Meisenzahl EM, Falkai P

Abstract

Currently in the field of schizophrenia research the early detection of at risk mental states for psychosis is an important topic of clinical research. Beside clinical and neuropsychological parameters structual MRI related parameters in focus.

Using support vector machine learning and pattern detection analysis, we demonstrate that the different kinds of at risk states (early at risk state, versus late at risk state) are associated with different kinds of brain alterations. It is possible to predict the risk of transition to psychosis on an individual level with high sensivity and specivity. This pattern recognition analyses proved also to be useful to differentiate between schizophrenia and depression (MDD) using brain aging as intermediate parameter.

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S9: Novel neuromoduation-based approaches for neuropsychiatric disorders

Chair: Daniel Javitt, USA
Co-Chair: Chan-Hyung Kim, Republic of Korea

Speaker 1: Andre Brunoni, Brazil

Title: Perspectives of tDCS in the treatment of affective disorders

Abstract

Major Depressive Disorder (MDD) is an incapacitating condition associated with significant personal, social and economic impairment. Nearly 30% of patients present drug refractoriness, reinforcing the need to develop novel therapeutic strategies for MDD. Transcranial direct current stimulation (tDCS) might be an alternative for these patients considering its tolerability, portability and ease of use. The tDCS technique alters neuronal resting membrane potentials to facilitate (anodal) and inhibit (cathodal) neuronal firing rates. The antidepressant effects of tDCS are based on neuroimaging studies, which have shown that, in depression, the left dorsolateral prefrontal cortex (DLPFC) is hypoactive and the right DLPFC is hyperactive. To achieve antidepressant effects, anodal tDCS is delivered over the left region for depolarization and cathodal tDCS is delivered over the right DLPFC for hyperpolarization. In this presentation, we review putative tDCS antidepressant mechanisms as well as clinical evidence based on recent controlled studies and meta-analyses evaluating tDCS efficacy and predictors of response for MDD. Present evidence indicates that tDCS may be an effective treatment strategy for MDD. There are no studies specifically examining the efficacy of tDCS in bipolar depression and mania, which are urgently needed in order to address tDCS effectiveness for bipolar disorder. In addition, there are reports of hypomania/mania after or during tDCS treatment; this risk should be prospectively investigated in further studies.

Speaker 2: Tae Young Lee, Republic of Korea

Title: Transcranial direct current stimulation in schizophrenia: a systemic review and meta-analysis

Abstract

Transcranial direct current stimulation (tDCS) has been proposed as a novel treatment options for in patients with schizophrenia. Several studies have investigate regarding the efficacy of tDCS intervention, but results were inconsistent. Therefore, meta-analytic conclusion is needed to evaluate the prospectives of this new intervention. Oline literature retrieval was conducted using Pubmed, Web of Science and Cochrane Central Register of Controlled Trials databases from January 2003 to October 2015. Key words were “tDCS”, “transcranial direct current stimulation”, and “schizophrenia”. Eighteen studies addressing tDCS for treatment of schizophrenia were screened. We will investigate the pooled effect size of tDCS on schizophrenia and elaborate the effectiveness of tDCS as a novel treatment option.

Speaker 3: Sohee Park, USA

Title: Innovative approaches to enhancing prefrontal functions: brain stimulation, neuroplasticity-based cognitive training and music.

Sohee Park
Department of Psychology, Vanderbilt University

Abstract

Cognitive, social and affective impairments associated with abnormal frontal cortical structure, function and connectivity lead to poor outcome across a wide range of neuropsychiatric conditions but pharmacotherapy has not been very effective in alleviating these deficits. In this talk, I evaluate the potential efficacy, utility and feasibility of non-pharmacological cognitive enhancement strategies that we have tested in neuropsychiatric conditions: schizophrenia, Parkinson’s disease, and brain cancer survivors.