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with both groups completing the cognitive training. The training included a flanker task involving emotional and visuospatial processing and executive function. The task consisted of a short practice section and 4 blocks of active response section, containing an equal number of neutral, positive and negative valence words. Task difficulty has been set individually for each training session. We expected to see cognitive improvement in both groups, and a greater improvement in the active tDCS group as compared to the sham stimulation.

Results: The examination of global cognitive function revealed a significant improvement in total scores of Addenbrook's cognitive examination (ACE), in memory scores of ACE, and immediate story recall scores of the Rivermead Behavioural Memory Test following the 10-day training in both the active and sham tDCS group. Both groups showed an improving tendency in Corsi Block-Tapping Test and in Listening Span Task. Results of affective testing revealed a significant decrease in depressive and anxiety symptoms based on Beck Depression Inventory, Spielberger's Trait Anxiety Inventory and Depression Anxiety Stress Scales scores in the active tDCS group, whereas total scores of the Hamilton Rating Scale for Depression decreased in both the active and sham tDCS groups.

Conclusion: Our current results suggest a beneficial effect of cognitive training combined with active/sham tDCS on overall cognitive functioning in stroke patients with different lesion sites. We found a significant decrease in affective symptoms with a clear benefit of active tDCS. Patient enrollment is in process and long-term effects are also being investigated.

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P.5.d.009 Predictive genetic model for levodopa-induced dyskinesia in patients with Parkinson's disease

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Parkinson's disease (PD), a common neurodegenerative disorder caused by the loss of the dopaminergic input to the basal ganglia, is commonly treated with levodopa (L-DOPA). The use of this drug, however, is severely limited by adverse effects. Levodopa-

induced dyskinesia (LID) is one of these and characterized by involuntary muscle movements that occur as a consequence of chronic levodopa treatment. LID is a substantial barrier to effective symptomatic management of PD as up to 45% of L-DOPA users develop LID within 5 years [1]. Clinical heterogeneity of LID suggests a significant role of endogenous factors in determining their prevalence. Some evidences suggest a relationship between LID and specific genetic variants, such as polymorphisms in the genes controlling enzymes responsible for drug and monoamine metabolism, neurotransmitter receptors and proteins involved in oxidative stress or antioxidant function [2–4].

Objective: To investigate a contribution of polymorphic variants of neurotransmitter receptors and cytochrome genes in the development of LID in PD patients.

Methods: A total of 212 PD patients who received L-DOPA therapy were studied. Dyskinesia was assessed by using the Abnormal Involuntary Movement Scale (AIMS). DNA extraction and genotyping were conducted according to standard protocols and blind to the clinical status of the subjects. Genotyping was carried out for 72 SNPs of DRD1, DRD2, DRD2/ANKK1, DRD3, DRD4, HTR2C, HTR3A, HTR3B, HTR6, HTR2A, HTR1A, HTR1B, CYP1A2*1F, CYP2D6*3, CYP2D6*4, CYP2C19*3, CYP2C19*17, CYP2C19*2, and GSTP1 genes using MassARRAY[®] Analyzer 4 (Agena Bioscience[™]) and the set SEQUENOM Consumables iPLEX Gold 384. Discriminant analysis and receiver operating curve (ROC)-analysis were carried out to build a genetic predictive model for dyskinesia.

Results: Group of PD patients consists of 149 females and 83 males (age ranging from 40 to 86 years, average age 68.7 ± 7.6 years). The mean age of onset is 60.04 ± 9.46 years, average disease duration is 9.79 ± 5.57 years. Dyskinesia was reported in 57 (26.9%) patients. The best discriminant model was obtained with the following predictors: rs11721264, rs165774, rs3758653, rs4245147, rs6313, rs1364043, rs2734849, rs324035, rs6311, rs11246226 and rs4244285. These polymorphisms are localized in the following genes: DRD3 (rs11721264, rs324035), DRD4 (rs3758653, rs11246226), DRD2 (rs4245147, rs2734849), HTR2A (rs6313, rs6311), HTR1A (rs1364043). The discriminant model using this set of SNPs gives the error of classification about 13% and the AUC 0.795. Depending on the anticipated frequency of LID, positive and negative predictor values varied between 0.745–0.834 and 0.864–0.916, respectively. We hypothesized in our previous studies that the pathological basis of LID might be degeneration of indirect pathway medium spiny neurons [5]. These indirect pathway medium spiny neurons carry type 2 family dopamine receptors (DRD2, DRD3, DRD4), and HTR2A receptors. Moreover, dopamine release may be promoted by inhibiting serotonergic neurotransmission. Hence, the current findings are well in line with this hypothesis.

Conclusion: The resulting panel of 11 SNPs provides a sufficiently high accuracy of LID prediction. The use of this panel in a prospective study will clarify the prospects for its application in clinical practice for predicting risk of LID in patients with PD.

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P.5.d.010 Implications of comorbidity and acute illness severity in elderly patients with delirium

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Background: Delirium is a complex neuropsychiatric syndrome, particularly prevalent among elderly hospitalized patients [1]. It is characterized by a rapid onset of symptoms, fluctuating course, disturbance of attention and awareness, changes in cognition and with evidence of a physical cause [2]. The etiology of delirium is usually multifactorial, resulting commonly from a combination of physiological illness and pre-existing risk factors [3].

Aim: The objective of this study was to analyze whether comorbidity and acute illness severity were associated with the development of delirium in elderly hospitalized patients.

Methods: This prospective study included elderly patients (aged ≥ 65 years old) consecutively admitted into two Intermediate Care Units (IMCUs) of the Intensive Care Medicine Service in the S. João Hospital Centre (CHSJ), in Porto, Portugal. A total score of ≤11 on the Glasgow Coma Scale, transference from Intensive Care Units (ICU), brain injury, blindness/deafness and inability to communicate were the exclusion criteria. At admission, comorbidity was determined by the Charlson Comorbidity Index (CCI). Severity of acute illness was assessed together with the Acute Physiology and Chronic Health Evaluation II (APACHE-II), with the Simplified Acute Physiology Score II (SAPS-II) and with the Sequential Organ Failure Assessment (SOFA), which were calculated in the first 24 hours of admission. All patients were also assessed daily for delirium, with the European Version of the Confusion Assessment Method (CAM) [4,5]. Patients with and without delirium were compared, using the Mann-Whitney U test for continuous variables at a significance level of 0.05 (two-tailed).

Results: In this study, 42 patients were included (21 males and 21 females), with a mean age of 77.7 (sd = 7), mostly widowed (47.6%) and with a low educational level (77.5% with 0–4 years). The majority of patients (78.6%) were admitted by medical diagnosis and 40.5% were transferred from the Emergency Department. According to CAM, 28.6% of the patients developed delirium. Previous comorbidity was significantly higher in delirium patients, with a difference of 3 points found between the median score of CCI in both groups (median 10 vs. 7, $p = 0.016$). Acute illness severity assessed by APACHE-II, SAPS-II and SOFA was also higher in patients with delirium (median 21 vs. 14, $p = 0.009$; 39 vs. 31.5, $p = 0.005$; 5 vs. 3, $p = 0.022$, respectively), translating more severe acute conditions with higher mortality risk.

Conclusion: In this study, the development of delirium was associated with higher comorbidity and illness severity. These results support previous research findings and reinforce the existing predictive risk models for this syndrome. In order to develop effective preventive strategies for delirium, the identification of risk factors is crucially important.

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P.5.d.011 Antipsychotics without psychosis: exploratory study in Portuguese nursing homes

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Background: Elderly in nursing homes (NH) are often frail, presenting complex age-related comorbidities and mental illness