ORIGINAL ARTICLES

**COMT and STH polymorphisms interaction on cognition in schizophrenia**
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Catechol-\(O\)-methyltransferase (COMT) gene, a key regulator of prefrontal cortex (PFC) dopamine (DA) availability, has been extensively studied in relation to cognitive domains, mainly executive functions, that are impaired in schizophrenia, but results are still controversial. Since recent studies in patients affected by neurodegenerative and psychiatric disorders suggested a role of saitohin (STH) gene as a concurring factor in hypofrontality, the AA hypothesize that STH and COMT polymorphisms could have an additive effect on cognition in schizophrenia. Three forty three clinically stabilized patients with schizophrenia were assessed with a broad neuropsychological battery including the Brief Assessment of Cognition in Schizophrenia, the Wisconsin Card Sorting Test and the Continuous Performance Test and were genotyped for COMT Val108/158Met and STH Q7R polymorphisms. We observed the effects of COMT on speed of processing and executive functions, as well as a significant effect of STH on executive functions performances. Moreover, a significant interaction between COMT and STH polymorphisms was found on executive functions, with COMT Val/Val and STH R carriers performing worse. Our results showed a significant interaction effect of COMT and STH polymorphisms on cognitive performances, strengthening the involvement of STH in cognitive impairments, especially in the domains commonly impaired in schizophrenia.

**Economic impact of multiple sclerosis in Italy: focus on rehabilitation costs**
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The study estimates the cost of multiple sclerosis (MS) in Italy quantifying the impact of the rehabilitation on cost of illness. Patients with MS were enrolled at MS clinical centres, in rehabilitation units and among members with MS of the Italian MS Society across the Italy. The MS
The aim of the study was to evaluate visual and brainstem auditory evoked potentials (VEP, BAEP) in multiple sclerosis patients with respect to fatigue and disease-related variables. The study comprised 86 MS patients and 40 controls. Fatigue was assessed using the Fatigue Severity Scale (FSS/FSS-5) and the Modified Fatigue Impact Scale (MFIS). Latencies and amplitudes of the P100 component of VEP and the I–V components of BAEP were analyzed. The results of EP were compared between non-fatigued, moderately and severely fatigued MS patients and controls. P100 latency was increased and amplitude decreased in moderately and severely fatigued MS subjects. The latency of the V component of BAEP and interlatencies I-III-V were increased in severely fatigued patients. The amplitude of the V component was lowered in fatigued patients. VEP and BAEP abnormalities were usually one-sided. Interocular P100 latency difference tended to correlate with FSS/FSS-5. The parameters of VEP and BAEP correlated with functional system scores but not with MS duration, overall degree of disability or its progression over time. Significant, usually asymmetrical VEP and BAEP abnormalities were found in fatigued MS patients, with no relationships to disease-related variables. EP may be considered an electrophysiological marker of fatigue in MS patients.

Assessment of visual and auditory evoked potentials in multiple sclerosis patients with and without fatigue

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The aim of the study was to evaluate visual and brainstem auditory evoked potentials (VEP, BAEP) in multiple sclerosis (MS) patients with regard to fatigue and disease-related variables. The study comprised 86 MS patients and 40 controls. Fatigue was assessed using the Fatigue Severity Scale (FSS/FSS-5) and the Modified Fatigue Impact Scale (MFIS). Latencies and amplitudes of the P100 component of VEP and the I–V components of BAEP were analyzed. The results of EP were compared between non-fatigued, moderately and severely fatigued MS patients and controls. P100 latency was increased and amplitude decreased in moderately and severely fatigued MS subjects. The latency of the V component of BAEP and interlatencies I-III-V were increased in severely fatigued patients. The amplitude of the V component was lowered in fatigued patients. VEP and BAEP abnormalities were usually one-sided. Interocular P100 latency difference tended to correlate with FSS/FSS-5. The parameters of VEP and BAEP correlated with functional system scores but not with MS duration, overall degree of disability or its progression over time. Significant, usually asymmetrical VEP and BAEP abnormalities were found in fatigued MS patients, with no relationships to disease-related variables. EP may be considered an electrophysiological marker of fatigue in MS patients.

Visual dysfunction in patients with Parkinson’s disease and essential tremor

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The aim of this study was to determine the specificity and sensitivity of the Pelli-Robson and Ishihara diagnostic methods in differing Parkinson’s disease from essential tremor compared to DaTSCAN (dopamine transporter scan) findings. The intention was to investigate whether visual dysfunction appears in the early state of Parkinson’s disease. Therefore, we included patients with the symptomatology of Parkinsonism lasting between 6 and 12 months. The study included 164 patients of which 59 (36.0 %) suffered from Parkinson’s disease, 51 (31.1 %) from essential tremor, and 54 (32.9 %) healthy patients which presented the control group. The specificity of Pelli-Robson test in confirming Parkinson’s disease was 53 % and the sensitivity 81.4 %. The specificity of Ishihara test in confirming Parkinson’s disease was 88.2 %, and sensitivity 55.9 %. The AA found that the colour and contrast dysfunction are present as the earliest symptoms of Parkinson’s disease. In this study the Pelli-Robson test is highly sensitive and the Ishihara tables are highly specific in the differential diagnosis between Parkinson’s disease and essential tremor, but neither of these methods fulfils the criteria for the validity of a test. They suggest performing both of these methods to evaluate which patients are indicated for DaTSCAN.

Comparing neuroprotective effects of CDNF-expressing bone marrow derived mesenchymal stem cells via differing routes of administration utilizing an in vivo model of Parkinson’s disease

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The potential value of cerebral dopamine neurotrophic factor (CDNF) in treating Parkinson’s disease (PD) remains controversial. To evaluate the therapeutic effects of CDNF-expressing bone marrow derived mesenchymal stem cell (CDNF-MSCs) injections in a rat model of Parkinson’s disease, we chose three different routes of CDNF-MSC administration, including intra-striatal, intraventricular, and intravenous pathways. Parkinsonism was induced by intra-striatal unilateral injection of 6-OHDA and then rats were subsequently randomized into three groups for either intra-striatal, intra-ventricular or intravenous injection for CDNF-MSC grafting. Therapeutic effects were