

## Highlights of the issue 9, 2019

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Antonio Federico  
Editor-in-Chief

### REVIEW ARTICLES

#### **Neuropsychological disorders in non-central nervous system cancer: a review of objective cognitive impairment, depression, and related rehabilitation options**

Fulvia Di Iulio, Luca Cravello, Jacob Shofany, Stefano Paolucci, Carlo Caltagirone, Giovanni Morone (Italy)

<https://doi.org/10.1007/s10072-019-03898-0>

The objective of the present review was to systematically characterize the types of cognitive impairment that are found in different non-brain types of cancer as measured by objective and validated tests, and also to further examine depression and cognitive function in cancer patients and explore their available rehabilitation treatments. A total of 29 articles were reviewed. Most of these studies suggest that chemotherapy as well as the combination of chemotherapy and hormonal therapy can influence cognition in different types of cancer patients. Breast cancer patients appear to be the most affected in neuropsychological function, specifically in terms of cognitive impairment and reduced quality of life, as compared to other non-brain solid tumours. Overall, the most impaired

functions were verbal ability, memory, executive function, and motor speed. In conclusion Chemotherapy-related cognitive dysfunction remains under-recognized and undertreated. The various studies reported differing and non-homogenous findings with mixed results, obtained by self-reporting and web-assisted assessment, with other confounding factors such as age and depression during both cancer diagnosis and treatment. An objective neuropsychological assessment is fundamental to avoid underestimation of the extent of chemobrain. Self-reported and web-assisted assessment may ultimately result in confusion between the neuropsychological signs of chemobrain versus those of depression.

#### **Hypertension, seizures, and epilepsy: a review on pathophysiology and management**

Sara Gasparini, Edoardo Ferlazzo, Chiara Sueri, Vittoria Cianci, Michele Ascoli, Salvatore M. Cavalli, Ettore Beghi, Vincenzo Belcastro, Amedeo Bianchi, Paolo Benna, Roberto Cantello, Domenico Consoli, Fabrizio A. De Falco, Giancarlo Di Gennaro, Antonio Gambardella, Gian Luigi Gigli, Alfonso Iudice, Angelo Labate, Roberto Michelucci, Maurizio Paciaroni, Pasquale Palumbo, Alberto Primavera, Ferdinando Sartucci<sup>1</sup>, Pasquale Striano, Flavio Villani, Emilio Russo, Giovambattista De Sarro, Umberto Aguglia; On behalf of the Epilepsy Study Group of the Italian Neurological Society (Italy)

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Epilepsy and hypertension are common chronic conditions, both showing high prevalence in older age groups. This review outlines current experimental and clinical evidence on both direct and indirect role of hypertension in epileptogenesis and discusses the principles of drug treatment in patients with hypertension and epilepsy. The AA selected English-written articles on epilepsy, hypertension, stroke, and cerebrovascular disease until December, 2018.

Renin-angiotensin system might play a central role in the direct interaction between hypertension and epilepsy, but other

mechanisms may be contemplated. Large-artery stroke, small vessel disease and posterior reversible leukoencephalopathy syndrome are hypertension-related brain lesions able to determine epilepsy by indirect mechanisms. The role of hypertension as an independent risk factor for post-stroke epilepsy has not been demonstrated. The role of hypertension-related small vessel disease in adult-onset epilepsy has been demonstrated. Posterior reversible encephalopathy syndrome is an acute condition, often caused by a hypertensive crisis, associated with the occurrence of acute symptomatic seizures. Chronic anti-epileptic treatment should consider the risk of drug-drug interactions with antihypertensives. Conclusions Current evidence from preclinical and clinical studies supports the vision that hypertension may be a cause of seizures and epilepsy through direct or indirect mechanisms. In both post-stroke epilepsy and small vessel disease-associated epilepsy, chronic anti-epileptic treatment is recommended. In posterior reversible encephalopathy syndrome blood pressure must be rapidly lowered and prompt anti-epileptic treatment should be initiated.

#### **Myelopathy associated with mixed connective tissue disease: clinical manifestation, diagnosis, treatment, and prognosis**

Yulei Hao, Meiyang Xin, Shuang Wang, Di Ma, Jiachun Feng (China)

<https://doi.org/10.1007/s10072-019-03935-y>

Mixed connective tissue disease (MCTD) is a chronic autoimmune disease, which has a broad range of clinical manifestations shared by systemic lupus erythematosus, systemic sclerosis, polymyositis/dermatomyositis, and rheumatoid arthritis. MCTD is featured with high serum titers of anti-ribonucleoprotein antibodies and multiple system involvement. Its spinal cord involvement mainly manifests as transverse myelopathy (TM) and longitudinal extensive transverse myelopathy (LETM). Myelopathy in MCTD is extremely rare, and is usually characterized by serious neurological complications, such as paralysis or muscular paresis, sensory impairment, and smooth muscle dysfunction. Progressive clinical manifestations combined with laboratory examinations and magnetic resonance imaging examinations play important roles in the diagnosis of this disease. In order to prevent permanent neurological damage to the spinal cord, plasmapheresis and intravenous immunoglobulin can be performed in patients at the early disease stage. Early high-dose corticosteroids combined with cyclophosphamide, followed by low doses of immunosuppressors, can improve the long-term prognosis of patients. There are only nine global cases reported on MCTD associated with myelopathy at present. The death rate and disability rate of myelopathy in MCTD are extremely high. In this review, the pathomechanisms, clinical manifestations, auxiliary examination, diagnosis, differential diagnosis, treatment, and prognosis of myelopathy in MCTD were systematically elucidated.

## **ORIGINAL ARTICLES**

#### **Gender and thrombolysis therapy in acute ischemic stroke patients with incidence of obesity**

Brice Blum, Alexandria Penwell, Leah Wormack, Brittany Walker, Shyyon Lari, Thomas I. Nathaniel (USA)

<https://doi.org/10.1007/s10072-019-03902-7>

To investigate clinical risk factors that were associated with gender differences in thrombolysis therapy in stroke patients with incidence of obesity.

Retrospective data of obese acute ischemic stroke patients were extracted from a stroke registry between January 2010 and June 2016. Gender differences in exclusion from rtPA or thrombolysis therapy were determined following an adjustment for differences in demographics, clinical risk factors using multiple regression analysis. Significant interactions between variables in the regression models were determined using variance inflation factors.

A total of 1105 obese stroke patients were admitted, 549 were excluded from rtPA of which 51.7% were males and 48.3% were females. Among obese male stroke patients, age > 80 years (OR = 1.029, 95% CI, 1.005–1.054,  $P = 0.016$ ), a history of peripheral vascular disease (OR = 3.008, 95% CI, 0.989–9.153,  $P = 0.052$ ), and an elevated diastolic blood pressure (OR = 1.018, 95% CI, 1.001–1.035,  $P = 0.038$ ) were associated with exclusion from rtPA therapy. In obese female stroke patients, coronary artery disease was associated with exclusion from rtPA (OR = 2.478, 95% CI, 1.270–4.836,  $P = 0.008$ ) while antihypertensive therapy was associated with inclusion for rtPA (OR = 0.326, 95% CI, 0.139–0.764).

Elderly obese male stroke patients with elevated diastolic blood pressure, history of peripheral vascular disease, and obese female stroke patients with a history of coronary artery disease were more likely to be excluded from rtPA.

#### **Influence of chronotype on migraine characteristics**

Giovanna Viticchi, Lorenzo Falsetti, Matteo Paolucci, Claudia Altamura, Laura Buratti, Sergio Salvemini, Nicoletta Brunelli, Marco Bartolini, Fabrizio Vernieri, Mauro Silvestrini (Italy)

<https://doi.org/10.1007/s10072-019-03886-4>

The aim of this study was to investigate chronotype in migraine patients and possible influences on the clinical expression of the disease.

During a one-year period, all consecutive patients admitted to two third-level headache centres with a new diagnosis of migraine were enrolled in a cross-sectional study. All subjects were submitted to the Morningness–Eveningness Questionnaire (MEQ-SA) and then classified in five different categories, from late to early-rising chronotype. Differences and trends among MEQ-SA categories and years from

migraine onset, attacks' intensity and frequency were analysed first with analysis of variance, then with a multivariate/generalized linear model.

One hundred seventy one migraine patients were included. Early-rising patients showed a lower migraine attacks frequency and longer disease duration with respect to late-rising patients. The categorical variable containing the five circadian types was able to identify a significantly different trend both for the monthly attacks frequency and for the disease duration ( $p < 0.0001$  and  $p < 0.0001$ , respectively, analysis of variance). The results were also confirmed after correction for main influencing variables (multivariate/generalized linear model). The intensity of migraine attacks was not influenced by chronotype.

According to the results of the present study, chronotype seems to influence number and duration of migraine attacks. Although sleep–wake cycle is a well-recognized factor able to influence thalamic–cortical synchronization, it usually does not receive appropriate consideration during migraine patients' assessment

#### **A study on clinical characteristics and the causes of missed diagnosis of reversible posterior leukoencephalopathy syndrome in eclampsia**

Tong Shen, Hao Chen, Jia Jing, Hafiz Khuram Raza, Zuozhui Zhang, Lei Bao, Su Zhou, Shenyang Zhang, Guiyun Cui (China)

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To explore the clinical and imaging characteristics and summarize the causes of missed diagnosis of reversible posterior leukoencephalopathy syndrome (RPLS) in eclampsia. The AA collected the data of a total of 45 patients with RPLS who were misdiagnosed initially (27 cases were confirmed and 18 cases were suspicious) out of 804 patients with severe eclampsia who had presented themselves to the Affiliated Hospital of Xuzhou Medical University from January 2014 to December 2016. The AA summarized the clinical and imaging characteristics of the patients and analysed the possible causes of the misdiagnosis. Results Among the 804 patients with eclampsia, 45 were misdiagnosed the first time. Their clinical manifestations included headache (20 cases), epilepsy (13 cases), blurred vision (11 cases), disturbance of consciousness (2 cases), and drowsiness (3 cases). The parietal lobe was involved in 22 cases, the occipital lobe in 15 cases, the frontal lobe in 20 cases, basal ganglia in 9 cases, and the temporal lobe in 8 cases. Low-density lesions were observed on com-

puted tomography (CT) scans. Head magnetic resonance (MR) scans showed hypo-intense lesions on T1-weighted image (T1WI), hyper-intense lesions on the T2-weighted image (T2WI) and fluid-attenuated inversion recovery (FLAIR), iso-intense or slightly hyper-intense lesion on diffusion weighted imaging (DWI), and slightly hyper-intense or hypo-intense lesion on apparent diffusion coefficient (ADC). Conclusion The incidence of reversible posterior leukoencephalopathy syndrome is extremely high. The clinical features include headache, mental disturbance, seizures, blurred vision, and other neurological symptoms. The lesions are mainly limited to the parietal and occipital lobes; however, the frontal lobe, basal ganglia, temporal lobe, corpus callosum, and cerebellum can also be involved. The prognosis is good with timely and appropriate treatments.

#### **BRIEF COMMUNICATION**

#### **Cycle ergometer training enhances plasma interleukin-10 in multiple sclerosis**

Alison Barry, Owen Cronin, Aisling M. Ryan, Brian Sweeney, Orna O'Toole, Ken D. O'Halloran, Eric J. Downer (Ireland)

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The objective was to determine plasma levels of pro- (IL-12p70/IL-6) and anti-inflammatory (IL-10) cytokines before and after cycle ergometer training in healthy control (HC) and people with multiple sclerosis (pwMS), and to correlate plasma cytokines with physical/mental health. Study participants cycled for 30 min at 65–75% age-predicted maximal heart rate, twice a week for 8 weeks during supervised sessions. The AA determined that plasma IL-10 expression was lower in pwMS, compared to HCs, and that exercise augmented IL-10 in pwMS to baseline levels in HCs. Furthermore, plasma isolated from pwMS displayed enhanced expression of the pro-inflammatory cytokines IL-12p70/IL-6. Plasma cytokine signatures correlated with physical/mental health. Overall, this study highlights the potential of a short-term exercise programme to regulate circulating cytokine profiles with relevance to pwMS.

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