ABSTRACTS

18th BCTRIMS Annual Meeting

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Event Venue - Tivoli Mofarrej | São Paulo | Brazil

Themes

» Epidemiology and MRI
» Immunology, basic science and clinical findings
» MS treatment and multidisciplinary care
» NMO, ADEM and CIS

Oral presentation

Modality: Oral presentation
Theme: Epidemiology and MRI

Code: 57493

Title: FUNCTIONAL MRI AS A TOOL TO EVALUATE COGNITIVE STRATEGIES IN MULTIPLE SCLEROSIS

Authors: Pedro Henrique Rodrigues da Silva; Renata Ferranti Leoni; Carina Tellaroli Spedo; Amilton Antunes Barreira;
Institution: UNIVERSIDADE DE SAO PAULO

Abstract: Introduction:The evaluation of Effective Connectivity (EC) is relevant for neurological diseases, such as Multiple sclerosis (MS), since its assessment over time may indicate the occurrence of adaptive neuroplasticity, serving as a tool to evaluate therapeutic strategies. Therefore, this study aims to investigate, in healthy volunteers, the EC between regions activated during the performance of an adapted version of the Symbol Digit Modalities Test (SDMT), an international gold standard for screening of Information Processing Speed (IPS) of MS patients. Materials and Methods:Sixteen controls were recruited and underwent a cognitive evaluation with an oral version of the SDMT before image acquisition. MRI was acquired in a 3T system. Functional MRI based on BOLD contrast was acquired with a 2D EPI sequence. The experiment consisted of six 30-s blocks of control intercalated with five 30-s blocks of task (SDMT). During the task blocks, a symbol was displayed every 2 s, and the participant was asked to associate the number corresponding to the displayed symbol based on a response key. During the control blocks, a number was displayed every 2 s, and the participant was asked to silently read the number displayed. Statistical maps were obtained using SPM12 software, and EC was studied using Dynamic Causal Modelling. Results:Activations were observed in frontoparietal network and occipital cortex. Highest evidence for system architecture featured the lingual gyrus in a serial position between cuneus and declive, which is followed by paralleled connected precuneus and superior parietal lobule, from which information converges onto the inferior frontal gyrus and bifurcates into bilateral middle frontal gyri. Discussion and Conclusion: Activations observed were reported in previous studies. A network model with areas involving IPS was obtained and may serve as reference for future investigations of this cognitive process in MS and its changes in new cognitive strategies.

Contact: PEDRO HENRIQUE RODRIGUES DA SILVA - pedrojoanabrit@gmail.com

Modality: Oral presentation

Theme: Epidemiology and MRI

Code: 57919

Title: THE PROSPECTIVE DATABASE OF PREGNANCY AND MULTIPLE SCLEROSIS IN BRAZIL

Authors: Yara Dadalti Fragoso; Joseph Bruno Bidin Brooks; Dagoberto Callegaro; Audred Cristina Biondo Eboni; Alessandro Finkelsztejn; Sidney Gomes; Marcus Vinicius Magno Goncalves; Priscilla da Costa Goncalves; Jussara Mathias Netto Khouri; Suzana C. Nunes Machado; Andre Palma da Cunha Matta; Hanna Nery Martins; Maria Fernanda Mendes; Adaucto Wanderley Nobrega Jr; Marina Camargo Pereira; Gutemberg Augusto Cruz dos Santos; Nise Alessandra de Carvalho Sousa; Carlos Bernardo Tauil; Thereza Cristina A. Winckler;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: Retrospective studies on pregnancy and chronic diseases have been the source of much learning on obstetric and neonatal management of very particular situations. Since there are no clinical trials for pregnant women (or those willing to conceive), most of the present knowledge has grown through retrospective cohort information on these pregnancies. Multiple sclerosis (MS) is a disease that typically affects young women and most specialists have to deal with the subject of “pregnancy and MS” in daily practice. Over the last few years, three countries (Italy, Germany and Canada) started their own prospective database on pregnancy and MS, and valuable information from these has been reported in the literature. Since 2015, Brazil has its own independent prospective database on pregnancy and neuroimmune diseases (including MS). The present study reports on the initial results from this nationwide effort. Methods: This study is sponsored by a research grant (PQ-2) from the Brazilian National Council for Scientific and Technological Development (CNPq). It is gathering prospective data on pregnancy outcomes among women with neuroimmune diseases. A special Excel file is used to collect all information. Results: The initial results from this study have provided full prospective information on 49 women with MS (median age 33 years) whose pregnancy had an outcome from January 2015 onwards. There was one abortion, one fetal death and 47 deliveries of healthy babies (one with hypospadias and testicular agenesis, one with breathing discomfort after birth, and one with large fontanel). There were three cases of MS worsening after pregnancy, and eight cases of postnatal relapses. Exposure to disease-modifying drugs for MS was high and included glatiramer, interferon, natalizumab, fingolimod and teriflunomide. Conclusion: This database is an important tool for neurologists and obstetricians to learn how to manage pregnancy in patients with MS. We hope you will participate by registering your cases.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Oral presentation

Theme: Immunology, basic science and clinical findings

Code: 57480

Title: INCREASED CYTOTOXIC ACTIVITY BY B CELLS AND CD4+ T LYMPHOCYTES IN NMO/NMOSD PATIENTS.

Authors: Vinícius de Oliveira Boldrini; Verônica Almeida de Paula Galdino; Raphael Patrício da Silva Quintiliano; Adriel dos Santos Moraes; Rafael Patternò Castello Dias Carneiro; Francisco Tomaz Meneses de Oliveira; Charles Peter Tilbery; Leonilda Maria Barbosa dos Santos; Alessandro dos Santos Farias;
Institution: UNIVERSIDADE ESTADUAL DE CAMPINAS (UNICAMP)

Abstract: Background: Neuromyelitis Optica (NMO) is an autoimmune disease of the central nervous system (CNS) characterized by recurrent optic neuritis and longitudinal extensive transverse myelitis. Despite the well-characterized participation of B cells in NMO pathology, it is possible that cytotoxic activity may also play an important role in demyelination. Evidence of granzymes involvement during demyelination/neurodegeneration has been suggested for other autoimmune diseases, such as multiple sclerosis (MS). Objectives: We investigated the production of granzyme B (GzmB) sub-populations in peripheral blood sample from patients with NMO and NMO spectrum disorders (NMOSD). Methods: 20 NMO/NMOSD patients were recruited according to clinical criteria and 40 healthy subjects were used as control group. Peripheral blood mononuclear cells were isolated by Ficoll-Hypaque gradient centrifugation and labeled for flow cytometry. Results: We found increased GzmB-production in B cells and CD4+ T lymphocytes in NMO/NMOSD patients compared to healthy controls. Conclusions: GzmB-production by these sub-populations is a shared mechanism between MS and NMO/NMOSD, and might reflect a common feature among other demyelinating disorders. The better understanding of GzmB involvement during demyelination/neurodegenerative processes may be crucial to monitoring the diseases progression, the efficacy of the current treatments as well as to development of new therapy strategies.

Contact: VINÍCIUS DE OLIVEIRA - vi_boldrini@hotmail.com

Modality: Oral presentation

Theme: Immunology, basic science and clinical findings

Code: 57777

Title: INTERLEUKIN 27 PLAYS A CRITICAL ROLE IN ACTIVATION OF IL-10-PRODUCING B LYMPHOCYTES IN PATIENTS WITH NEUROMYELITIS OPTICA UNDER TREATMENT

Authors: Rafael Paternò Castello Dias Carneiro; Marilia Domingues Andrade; Veronica Almeida de Paula Galdino Silva; Francisco Tomaz Menezes Oliveira; Vinicius Oliveira Boldrini; Alfredo Damasceno; Benito Pereira Damasceno; Adriel Santos Moraes; Alessandro Santos Farias; Carlos Otavio Brandão; Felipe von Glehn; Charles Peter Tilbery; Leonilda Maria Barbosa Santos;
Institution: CATEM - SP

Abstract: Introduction: IL-27 is a cytokine produced mainly by dendritic cells and macrophages that displays pro- and anti-inflammatory functions. In line with a dual role of IL-27, it has been shown that this cytokine prevents tissue damage induced by excessive inflammation. In addition, the activation of naïve CD4+ cells in the presence of IL-27 results in the differentiation of IL-10-producing TR1 cells with potent suppressive activity and IL-27 directly inhibits the differentiation of TH17 cells. IL-17 is increased in untreated patients with NMO and this cytokine is involved in the synthesis of autoantibody. Objective: to investigate the role of IL-27 on B lymphocytes function in patients with NMOSD. Material and methods: 18 patients diagnosed with NMO according to International Panel criteria were studied. Cytokines were determined either by RT-PCR or ELISA. IL-27 receptor and B lymphocytes were determined by Flow cytometry using anti IL-27 receptor and anti B lymphocyte antibodies (R&D system, USA). Results: A significant increase in IL-27 expression was observed in treated NMO patients with no expression of IL-17, consistent with effect of treatment. NMOSD patients cells stimulated in culture produced significantly higher levels of IL-17. Increased number of IL-10-producing B cells was also observed. B cells from patients and healthy controls express IL-27 receptor in comparable level. Normal B lymphocytes cultured in presence of IL-27 produced more IL-10 in comparison with B cells cultured in absence of IL-27. Discussion: Although 80% of treated NMO patients presented antibodies to Aquaporin 4, we present evidence that IL-27 is activated by the treatment and contribute to generation of suppressor B cells and downregulation of IL-17. Conclusions: IL-27 is activated by the treatment in NMO patients. IL-27 stimulated the number of IL-10 producing B cells and reduced the production of IL-17.

Contact: RAFAEL PATERNO CASTELLO DIAS CARNEIRO - r.paterno@me.com

Modality: Oral presentation

Theme: Immunology, basic science and clinical findings

Code: 57477

Title: MOLECULAR ANALYSIS OF HLA-DR E IL7RA GENE POLYMORPHISMS IN MULTIPLE SCLEROSIS SUSCEPTIBILITY (MS) IN A RIO DE JANEIRO STATE SAMPLE.

Authors: Alyssa Maia Costa; Luciana Ferreira Do Carmo; Eduardo Paradela; Max Vanderson; André Figueiredo;
Institution: IBMR- LAUREATE INTERNATIONAL UNIVERSITIES

Abstract: Multiple Sclerosis (MS) is an autoimmune neurologic disorder of central nervous system (CNS) which mainly affects young adults. MS has been associated with MHC Class II allele HLA-DRB1*15:01. The disease is characterized by destruction of the myelin sheath around the axon of a neuron in the central nervous system. This disease has been associated with several genes, such as IL7Rα (interleukin 7 receptor gene, 5p13), also known as CD127. The aim of this study was to evaluate the relationship between the gene IL7Rα T244I polymorphism (rs6897932) and susceptibility to MS. In this study, peripheral blood samples were taken from 50 patients diagnosed with MS who were registered with the outpatient Clinic of Neurology, at the University Hospital Clementino Fraga Filho (UFRJ); and from 126 healthy control subjects, matched for ancestry, sex and age. MS patients were classified according to the McDonald´s criteria. After DNA extraction by the organic method, the polymorphism T244I was evaluated by PCR followed by capillary electrophoresis in the ABI PRISM® 3500 Genetic Analyzer platform (Applied Biosystems). The results indicated that Odds Ratio (OR) associated with C allele presence was 2.15 (Mantel Haenszel corrected p value = 0.0424395). The association between rs6897932 polymorphism and HLA-DRB1*15:01 allele was OR = 3.52 (Mantel Haenszel corrected p value = 0.039823). These findings reinforce the genetic trait of this HLA related disease, indicating a putative relationship between the polymorphism T244I in the IL7Rα (CD127) gene and susceptibility to MS.

Contact: ALYSSA MAIA COSTA - alyssa.maia@hotmail.com

Modality: Oral presentation

Theme: MS treatment and multidisciplinary care

Code: 57983

Title: A SPECIALTY CENTER 10 YEAR EXPERIENCE WITH USE OF AZATHIOPRINE IN NEUROMIELYTIS OPTICA SPECTRUM DISORDERS (NMOSD)

Authors: Ana Beatriz Ayroza Galvão Ribeiro Gomes; Aline de Moura Brasil Matos; Lais Maria Gomes de Brito Ventura; Milena Sales Pitombeira; Renata Barbosa Paolilo; Pedro Henrique Bruel Torreta; Douglas Kazutoshi Sato; Dagoberto Callegaro; Samira Luisa Apóstolos Pereira;
Institution: HOSPITAL DAS CLÍNICAS DA UNIVERSIDADE DE SÃO PAULO

Abstract: Introduction: Azathioprine was historically used for the management of multiple sclerosis and it is currently widely used in the treatment of neuromielytis optica spectrum disorders (NMOSD). An increase in risk of cancer has been reported in patients with long term use of azathioprine for intestinal and rheumatologic diseases. There is no such description for patients with NMOSD. We report our experience with the long term use of azathioprine in NMOSD patients. Methods: We conducted a retrospective medical record review of all Hospital das Clínicas da Universidade de São Paulo patients who filled NMOSD 2015 criteria and were treated with azathioprine for at least 10 years. Results: Of 375 reviewed records, 18 patients met inclusion criteria (4.8%); 17 were female and 1 was male, 17 were NMO-IgG seropositive. Median age was 44 years (27-56). Median time of disease was 15 years (10-39). Mean duration of treatment was 12.43 (SD = 3.16). Mean relapse/year rate prior and post introduction of azathioprine was 0.928 (SD = 0.478) and 0.131 (SD = 0.115) with a statistically significant reduction ($p < 0.001$). Eleven patients (61.1%) had been relapse-free for at least 5 years. Three (16.6%) had adverse events during the follow up: chronic B12 deficiency, pulmonary tuberculosis and breast cancer. At the time of the review 13 of the 18 patients (72%) were still receiving azathioprine, 1 had been switched methotrexate (long exposure), 1 to rituximab (therapy failure) and 3 had immunosuppression discontinued (disease stability). Discussion: Adverse events are a concern with long exposure to azathioprine. In our sample, azathioprine was considered safe with only one report of malignancy (5.5 %) on a 10 year follow up. It was also effective in relapse prevention ($p < 0.001$). Conclusion: We believe the risks of adverse events are surpassed by the clinical benefits of azathioprine use, therefore we suggest a vigilant maintenance of therapy for responding patients with long exposure.

Contact: ANA BEATRIZ AYROZA GALVÃO RIBEIRO GOMES - anabagrg@gmail.com

Modality: Oral presentation

Theme: MS treatment and multidisciplinary care

Code: 57501

Title: BRIEF INTERNATIONAL COGNITIVE ASSESSMENT FOR MULTIPLE SCLEROSIS (BICAMS): REGRESSION-BASED NORMS TO THE BRAZILIAN CONTEXT.

Authors: Carina Tellaroli Spedo; Seth E Frndak; Audrey Smerbeck; Maria Paula Foss; Leonardo IM Medeiros; Fernando Coronetti; Danilo A Pereira; Vanessa D Marques; Silvana Batista Gaino; Amilton A Barreira; Ralph H. B. Benedict;
Institution: FMRP-USP

Abstract: Introduction: Monitoring of cognitive impairment in MS is necessary. The BICAMS is a cognitive screening protocol recently validate and with proven reliability to the Brazilian context. The BICAMS is consolidated as a protocol to predict the functional performance and treatment efficacy. BICAMS are known to correlate with gray matter atrophy, specifically with right superior frontal lobe atrophy, hypointensity on T2-weighted images of both the caudate and globus pallidus , left frontal lobe atrophy and right frontal lobe atrophy. The objective of the present study was to derive regression-based norms for the BICAMS to the Brazilian context and to obtain additional estimates of validity. Material and Methods: 601 healthy volunteers (age 18-89 years, mean=41.6. SD=14.6) and 126 multiple sclerosis (MS) patients (age 18-72 years, mean=41, SD=12.7) answered BICAMS, Mini Mental State Examination (MMSE-2) and Hospital Anxiety and depression scale (HADS). A sub-sample of 43 MS patients answered the Multiple Sclerosis Vocational Survey (MSVS). Multiple regression analyses, predictive validity of normative scores and corrections for demographics were calculated. The regression models were used to predict the MS performance on the BICAMS. Discussion and Conclusions: The advantage of regression-based norms is the control of standard demographic variables (i.e., age, sex and education). The normalization of scores of BICAMS was more sensitive than raw scores to predict cognitive disability and need of support from Brazilian Social Security (INSS). The normative data of the BICAMS to the Brazilian context can facilitate daily clinical practice. Brazilian BICAMS regression based norms can help therapeutic conducts as soon previous international researches have been demonstrate, even with values, and different cultural contexts .

Contact: CARINA TELLAROLI SPEDO - spedoct@gmail.com

Modality: Oral presentation

Theme: NMO, ADEM and CIS

Code: 57907

Title: FIVE-YEAR FOLLOW-UP OF PEDIATRIC ONSET NEUROMYELITIS OPTICA SPECTRUM DISORDERS (NMOSD).

Authors: Renata Barbosa Paolilo; José Albino da Paz; Samira Luiza Apostolos Pereira; Carolina de Medeiros Rimkus; Lais Maria Gomes de Brito Ventura; Ana Beatriz Aryoza Galvão Ribeiro Gomes; Aline de Moura Brasil Matos; Milena Sales Pitombeira; Pedro Henrique Bruel Torreta; Ana Luiza Pereira Camara Araujo; Umbertina Conti Reed; Dagoberto Callegaro; Douglas Kazutoshi Sato;
Institution: HOSPITAL DAS CLINICAS DA FACULDADE DE MEDICINA DE SÃO PAULO

Abstract: Introduction: NMOSD is an inflammatory central nervous system condition mediated by serum aquaporin-4 immunoglobulin G antibody (AQP4-IgG). Pediatric onset NMOSD is rare and follow-up reports are missing. To describe a long-term follow-up pediatric onset NMOSD using the International Painel of NMO Diagnosis (IPND) updated in 2015. Method: We assessed all patients enrolled in our neuroimmunology service from January 2005 to April 2017 whose NMOSD symptoms began before 18 years-old and met the 2015-IPND criteria. Results: from 375 patients with NMOSD, 16 were pediatric (4,2%). There were 2/16 males, 4 caucasian and 12 of mixed ethnic background. Three patients had previous infectious disease and 2 had other autoimmune condition. Median age at onset was 11(6-18) years. Presenting symptoms were optic neuritis(9), myelitis(4) and brainstem syndrome(3). Median time to the second relapse was 6(1-36) months. Median annualized relapse rate was 1 relapse/year. Main relapse syndromes: neuritis(45), myelitis(36), brainstem(5), area postrema(2) and diencephalic(1). Eleven (68,8%) patients were AQP4-IgG positive. Abnormalities in the cerebrospinal fluid in 13 patients. None had positive oligoclonal bands. All MRI findings were compatible with NMOSD. All patients were acutely treated with methylprednisolone, followed by plasmapheresis(8), cyclophosphamide(6), immunoglobulin(3). The median relapse number prior to maintenance treatment introduction was 2(1-6). First treatment was azathioprine(14) or mycophenolate(2). Median EDSS of 3.5(1-8) after 5(1-17) years of follow-up. Eleven patients had visual acuity less than 20/200 in the worst eye. Conclusion: Our results confirm literature emphasizing optic neuritis as mainly inaugural presentation in pediatric NMOSD. This is the first long term follow up of pediatric NMOSD using 2015-IPND criteria showing a higher disability than previous report.

Contact: RENATA BARBOSA PAOLILO - renatabpaolilo@gmail.com

Poster Presentation

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57456

Title: COMPARATIVE ANALYSIS BETWEEN BRAIN LOSS AND FUNCTIONAL DISABILITY IN PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Helena Gemayel Marques; Iago Barbosa Pinto Rodrigues; Carlos Bernardo Tauil; Luciano Farage; Ronaldo Maciel Dias;
Institution: ESCOLA SUPERIOR DE CIÊNCIAS DA SAÚDE (ESCS)

Abstract: Introduction: The demyelinating and neurodegenerative processes in multiple sclerosis (MS) contribute to the loss of brain volume throughout the course of the disease. Nevertheless, the nervous system has an intrinsic potential for repair and compensation in the neuronal component. Brain volume loss has been correlated with disability progression and cognitive impairment in MS, with the loss of grey matter volume more closely correlated with clinical measures than loss of white matter volume. Brain volume can be reliably measured using magnetic resonance imaging (MRI), based methods to estimate global or regional brain volume, monitor changes in brain volume over time or measure therapeutic response. Brain atrophy is an important net consequence of tissue destruction in the CNS which is amenable to measurement with MRI. The extent of brain atrophy is well correlated with concurrent and future disability. Methods: 20 patients with multiple sclerosis from a hospital in Brasilia (DF) were randomly chosen and their MRI exams' were compared with their respective Expanded Disability Status Scale (EDSS) scores. Were compared total grey matter volume, total brain volume and volume of lesions of the MRI exams. Results: There were significant correlation between the total volume of lesions and the EDSS (Spearman's p values = 0,033; correlation coefficients = 0,477), between the total grey matter volume and EDSS (Spearman's p values = 0,078; correlation coefficients = -0,403) and the volume of lesions and the grey matter volume (Spearman's p values = 0,001; correlation coefficients = -0,687). Conclusion and discussion: There was a positive correlation between volume of lesions and EDSS, which may occur because of the demyelinating process, causing impairments for the patient. There was a negative correlation between the total grey matter volume and the EDSS, which may occur because of the brain atrophy, also causing impairments.

Contact: HELENA GEMAYEL MARQUES - helena_gemayel11@hotmail.com

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57956

Title: EDSS OR MSFC: WHICH ONE CORRELATES BETTER WITH BRAIN ATROPHY IN MULTIPLE SCLEROSIS?

Authors: Gustavo Henrique Tomasi; Giordani Rodrigues dos Passos; Lucas Piccoli Conzatti; Manuella Edler Zandoná; Lucas Immich Gonçalves; Aline Kotoski; Alexandre Franco; Luciana Schermann Azambuja; Douglas Kazutoshi Sato; Irênio Gomes; Jefferson Becker;
Institution: Hospital São Lucas da PUCRS

Abstract: INTRODUCTION The Expanded Disability Status Scale (EDSS) and the Multiple Sclerosis Functional Composite (MSFC) are the most widely used scales for disability assessment in multiple sclerosis (MS). We aimed to investigate which of those scales correlate better with brain atrophy. RESULTS Twenty-four patients with relapsing-remitting MS (women: 58%; mean age: 28.8 years; mean disease duration: 41.3 months) were included in this cross-sectional, exploratory study. Volumetric measures of the whole brain, white matter and gray matter were obtained from 3.0T magnetic resonance images by three softwares: FreeSurfer©, SienaX©, and Icometrix©. In order to improve reliability, the analysis of correlation between scales and volumes was performed independently with each software's measures, and only correlations observed in the three sets of analysis were considered consistent and thus reported here. MSFC presented moderate to strong correlation with whole brain and white matter volumes (R=0.450-0.673, $p<0.05$). There were no consistent correlations between MSFC and gray matter volume, neither between EDSS and any volumes. DISCUSSION Over the years, both the EDSS and the MSFC have proved useful to assess clinical disability. However, in our sample, only the MSFC correlated consistently with measurements of brain volume. We speculate the non-linearity of the EDSS scores in terms of clinical relevance, well demonstrated from previous studies, may account for its poorer correlation with the degree of brain atrophy. Choosing a disability scale obviously depends on a number of practical factors, but our findings suggest that, in studies focusing on brain atrophy, the MSFC should likely be preferred over the EDSS.

Contact: Gustavo Henrique Tomasi - tomasigustavo@gmail.com.br

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57939

Title: EPIDEMIOLOGIC PROFILE OF NMOSD PATIENTS IN BRAZIL: A COHORT STUDY

Authors: Luis Edmundo Teixeira de Arruda Furtado; Regina Coeli Carvalho Porto Carneiro; Fabricio Oliveira Lima; Israel Carneiro Tapeti França; Felipe Câmara Barros Pinto; Luise Vasconcelos Paula Pessoa Dias; Maykon Borges Xavier; Theodora Thays Arruda Cavalcante;
Institution: CENTRO UNIVERSITÁRIO INTA - UNINTA

Abstract: Introduction: Neuromyelitis Optica (NMOSD) was first described by Devic and Gault in 1894, and was considered, for many years, a variant of Multiple Sclerosis (MS). Brazil is a country of continental dimensions, mixed with great social and climatic differences, making it unique to execute epidemiological studies. However, epidemiologic studies on NMO are lacking in Brazil. Objective: Conduct an epidemiological survey of NMO patients in national territory, defining the natural history and spectrum of the disease, as well as its comorbidities. Material and Methods: 80 subjects participated in this study so far, from all regions of Brazil, screened using the message exchange application WhatsApp® and the social network Facebook®. Data were collected through a questionnaire to trace the epidemiological profile; it is composed of 50 questions on patients' general information, epidemiological aspects and natural history of NMOSD. The study was conducted online, through a platform in the SurveyMonkey® server. Results: Data analysis revealed 51(63.75%) of participants had their onset between 20 and 39 years old, with a mean age of onset of 29.71 years old. Prevalence on female participants was 74(92.50%), and 51(63,75%) of all subjects were born in the Southeast Region. The most prevalent first symptoms was visual impairing(30%,n=24), mostly affecting the left eye(16.25%, n=13, and currently 58(72.5%) of participants display some visual related problem. 74 participants went through AQP4-IgG testing and 48(60%) of them were positive, 37(46.25%) on the first try. 14 (17.5%) were inflicted by other autoimmune diseases and 22 (27.5%) by different diseases. 64 (80%) presented multiple outbreaks and 25(31,25%) five or more. 55 (69.62%) showed signs of cervical and/or thoracic myelitis on magnetic resonance imaging, the most prevalent being myelitis on both segments (n=27, 33.75%). 42(52.5%) had altered results on the Visual Evoked Potential test. Discussion: The lack of studies on NMO in Brazil enhance the value of this study and its epidemiological findings. The data gathered on the clinical, serological and radiological aspects of the participants allow us to consider them as affected by NMO.

Contact: ISRAEL CARNEIRO TAPETI FRANÇA - israelctf@hotmail.com

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57452

Title: EPIDEMIOLOGY OF MULTIPLE SCLEROSIS IN CURITIBA, BRAZIL

Authors: Rafaella do Rosario Tacla; Bruno Toshio Takeshita; André Stavitski Costa de Oliveira; Mayara Silva Marques; Carolina Oldoni; Jessica Giraldes; Marcos Seefeld; Thiago Silva Yoshida; Luciane Filla; Mônica Koncke Fiuza Parolin; Murilo Maraccini Hoffmann; Henry Koiti Sato;
Institution: PONTIFÍCIA UNIVERSIDADE CATÓLICA DO PARANÁ

Abstract: Introduction: Multiple sclerosis (MS) is an immune-mediated demyelinating disease of the central nervous system that affects mostly young adults and the female sex. Its prevalence and clinical presentation varies according to geographical area, probably due to ethnic and environmental factors. As Brazil is a large country with a population of diverse ethnic origins and most studies on the prevalence of MS assessed only the southeast region, we believe that studying the population with MS in Curitiba could help determining the prevalence and regional differences of MS nationwide. Objectives: To analyze the prevalence and demographic characteristics of MS in Curitiba. Methods: A retrospective cross-sectional study of the epidemiology of MS was conducted. Inclusion criteria comprised patients diagnosed with MS, in follow-up at three different hospitals and living in Curitiba or its metropolitan area. Patients in treatment for MS registered by the Secretary of Health of the State of Parana were also included. Exclusion criteria included cases of isolated radiological syndrome and cases of isolated clinical syndrome that did not meet criteria for the diagnosis of MS. Data was collected with a survey through the telephone by trained personnel. Data were analyzed using a correlation coefficient test. Results: The prevalence of MS in Curitiba was calculated based on the number of patients with MS registered by the Secretary of Health of the State of Parana. The remaining demographic data was determined by our sample (n=215). The prevalence of MS found in Curitiba was 19 per 100.000 inhabitants. On our sample 70% of patients were women. The majority of patients had the initial presentation between 24 and 30 years of age. Sixty-seven percent of patients were classified as having relapsing-remitting disease. Conclusion: The prevalence of MS in Curitiba was 19 per 100.000 inhabitants, which is in concordance to that found in the literature for Brazil and Latin America.

Contact: RAFAELLA DO ROSARIO TACLA - taclarafaella@gmail.com

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57823

Title: INTERCONTINENTAL VALIDATION OF BRAIN VOLUME MEASUREMENTS USING MSMETRIX

Authors: Yara Dadalti Fragoso; Alessandro Finkelsztejn; Eder Amaral Bastos; Juliana Avila Duarte; Juliana Santos Varela; Ruben Houbrechts; Diana Sima; Wim Van Hecke;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: Brain volume assessment has become an important outcome within research and treatment of multiple sclerosis (MS). MSmetrix (Icometrix) has been developed specifically for patients with MS. The original healthy, “normal” population used for determination of the acceptable brain volume data consisted mainly of Europeans. Methods: In the present study, results from 293 completely normal MRIs from Brazilian subjects were plotted against the original results in MSmetrix. Results: Two-hundred and ninety-three Brazilian MRI scans were included in the study. The group consisted of 92 men and 203 women, with a median age of 35 years (range: 5 to 78 years). All reports were completely normal. The whole brain volumes from these Brazilian subjects had an overall trend towards larger higher results than those in the original MSmetrix healthy population graph. Only 2% of the adult subjects were below the 5th percentile of the graph; 77% of the subjects were above the median; and 23% of the subjects were above the 95th percentile of the graph. Regarding grey matter volume, the Brazilian subjects were not significantly different from the MSmetrix population graph, and the trend was still towards slightly larger values: 3% of the subjects were below the 5th percentile of MSmetrix grey matter volumes; 60% of the subjects were above the median value; and 6% were above the 95th percentile. There were no significant differences between the percentiles obtained in these various subgroups (i.e. in comparisons of males versus females; younger versus older adults; younger females versus older females; and younger males versus older males). Conclusion: MSmetrix may be used across different populations.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57769

Title: IS ALCOHOL HARMFUL FOR PATIENTS WITH MULTIPLE SCLEROSIS?

Authors: Yara Dadalti Fragoso; Mariana Cardoso;
Institution: UNIMES

Abstract: Introduction - Multiple sclerosis (MS) is a chronic immunemediated, inflammatory demyelinating disease of the central nervous system. The association of predisposition and environmental conditions may result in an immunemediated neuronal loss. Lifestyle/environmental factors may have an role in determining it´s risk and are harder to study and quantify than are genetic factors. This systematic review addresses the association of alcohol with increased risk and worse outcomes in MS. Methods - Systematic review of the literature, searching for the terms "Alcohol" AND "Multiple Sclerosis" OR "MS" in the Medline, PubMed, Lilacs, SciELO and Google Scholar databases. References from selected articles were used to identify studies that might not previously have been recognized as pertinent. The period established for searching for articles started in 1983, after publication of Poser's criteria for diagnosing MS and finished on July 31, 2016. Results - Initial search identified 1399 potential papers from the search terms selected. After exclusion of duplications and articles that did not fulfill the criteria, 30 papers were selected for full-text discussion. Eleven research articles published between 2004 and 2016 were included. Alcohol misuse was considered to be a risk factor for development of MS by some authors but not by others. Some studies reported that drinking small amounts had a protective effect against developing MS. Discussion and Conclusion – Alcohol effects in MS need to be studied in greater detail. Despite the numerous health and social consequences of consumption, routine screening and intervention for people with MS remain uncommon. Strict recommendations for alcohol withdrawal are not evidence-based and might even be deleterious to disease progression. It needs to be asked whether small amounts of alcohol should be accepted or encouraged, within the lifestyles of patients. We hope that this review will serve as a basis for further work on the subject.

Contact: MARIANA CARDOSO - dtr.neuro@gmail.com

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57955

Title: MAGNETIC RESONANCE IMAGING IN DEMYELINATING DISEASES OF PEDIATRIC COHORT FOLLOWED IN A SPECIALIZED CLINIC

Authors: Lúcio José de Santa Ignêz; Andrea Silveira de Souza; Ana Paula Rodrigues Lazzari Amâncio; Julia Valeriano Almeida; Gabriel de M. F. Gamarano; Alessandra Augusta B. Penna e Costa; Tânia Regina Dias Saad Salles;
Institution: INSTITUTO FERNANDES FIGUEIRA

Abstract: Objective: Describe the characteristics of the magnetic resonance imaging (MRI) of patients with Acquired Demielinating Diseases (ADD) [Multiple Sclerosis (MS), Neuromyelitis Optica (NMO) and Acute Disseminated Encephalomyelitis (ADEM) and Clinically Isolated Syndrome (CIS)] followed in a specialized clinic of a pediatric reference center. Methods: Descriptive and retrospective study of a cohort of pediatric patients with ADD under 18 years old that have done a MRI. The included MRI images were acquired in machines with 1.5 or 3 Tesla magnets. Low quality images that interfered in their evaluation were excluded from the study. The radiological characteristics of the lesions were described using the 2010 Revised McDonald Diagnostic Criteria regarding their localization, contrast enhancement and optic nerve alterations. Results: Out of 23 patients included, 55% were female. The mean age of the first clinical event was 7.7 years. The mean time from the first clinical event to the diagnosis was 1.8 years (range 0-8 years). This time was generally shorter in MS patients (mean of 1.0 years for those less than 10 years of age and 0.7 years for the largest). Most common diagnosis was CIS (35%), followed by MS (30%), NMO (17%) and ADEM (17%). Mean time elapsed until diagnosis was 1.3 years. Follow-up MRIs of ADEM patients showed complete or partial resolution of lesions; MS lesions were mostly localized in the brain and three patients had contrast enhancement of lesions in their last available MRI. All NMO patients had extensive spinal lesions, and two had also optic neuritis. All CIS patients had focal spinal lesions and evolved with radiologic improvement. Conclusion: ADEM and CIS patients' MRIs showed reduction of lesions, while MS and NMO patients developed new lesions during follow-up. Early diagnosis is possible, even if it is a big challenge.

Contact: LÚCIO JOSE DE SANTA IGNÊZ - lucio.santaignez@gmail.com

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57352

Title: MULTIPLE SCLEROSIS PHENOTYPES AND DIAGNOSTIC CRITERIA THROUGHOUT TIME. A 15-YEAR COMPARATIVE STUDY IN A BRAZILIAN POPULATION

Authors: Gustavo Medeiros Andrade Figueira; Paula Vallegas Soares Bilouro; Mariana Ferreira Xavier; Raquel Custodio Silveira; Debora Bartzen Moraes Angst; Fernando Faria Andrade Figueira;
Institution: HOSPITAL SÃO FRANCISCO

Abstract: Objectives. A comparison between old and new multiple sclerosis (MS) diagnostic criteria and phenotypes over last 15 years and its impact on a real world scenario. Background. MS diagnostic criteria evolved dramatically on last two decades. After introduction of more and more effective therapies, close monitoring is cornerstone for optimal approach. New phenotypes based on concepts of activity and progression in order to achieve optimal control of disease, were proposed in a recent revision. Design/Method. Diagnosis of 172 consecutive naive MS and clinically isolated syndrome (CIS) patients were based according to McDonald 2001 criteria and Lublin 1996 phenotypes. Eleven files were excluded due to lost follow up or insufficient data. This cohort now with 127 MS and 34 CIS patients was stratified again in 2016, using the revised McDonald 2010 criteria and Lublin 2014 proposed phenotypes, and these results were compared. Results. On second enrollment 74% of our CIS cases fulfilled revised criteria for MS, while nine patients, all with optic neuritis, remained as CIS. Most RRMS cases (84%) were newly classified as relapsing active non progressive, whereas only five patients presented signs of both activity and progression. On the other hand, none SPMS was classified on relapsing group and half of them showed some evidence of clinical or imaging activity. This finding has major impact in follow up. Conclusion. Revised diagnostic criteria were feasible and anticipated diagnosis of MS in CIS patients, leading to earlier institution of treatment. New phenotypes, including objective elements of activity and progression, proved to be practical and had positive impact on follow up mostly in progressive cases, with a potential benefit on an eventual switch. Our findings suggest that both new phenotypes and revised diagnostic criteria must be included on standards of care, positively impacting long term disease management.

Contact: FERNANDO FARIA ANDRADE FIGUEIRA - fernando@ffigueira.net

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57351

Title: OPTIMIZING STANDARDS OF CARE IN MULTIPLE SCLEROSIS RESULT IN BETTER OUTCOMES. A BRAZILIAN OPEN LABEL STUDY ON TREATMENT OPTIMIZATION

Authors: Fernando Faria Andrade Figueira; Gustavo Medeiros Andrade Figueira; Paula Vallegas Soares Bilouro; Mariana Ferreira Xavier; Raquel Custodio Silveira; Debora Bartzen Moraes Angst;
Institution: HOSPITAL SÃO FRANCISCO

Abstract: Objectives. A critical appraisal on whether optimization of approach and follow up in relapsing remitting MS (RRMS) patients impact long term outcomes in real world scenario. Background. Multiple sclerosis (MS) treatment evolved on last two decades, mostly after introduction of so called disease modifying drugs (DMDs). Parallel to advent of new drugs our expertise applying diagnostic protocols and custom therapy improved, but paradigms for optimal care in MS still depend upon prompt and correct diagnosis together with an early as possible onset of treatment. Design/Method. Consecutive naive RRMS patients (McDonald 2001), all using a first line DMD, were stratified according to year of inclusion on treatment program, from 2002 to 2004 (n=101), 2005 to 2007 (n=93) and 2008 to 2010 (n=128). There were 17 treatment discontinuations: 9 in first, 6 in second and 2 in third cohort. Intention-to-treat data were plotted after 4 years in each group. Results. Cohorts matched for age, gender, age at first relapse, annualized relapse rate (ARR) and time from first to second relapse. On baseline, time delay to beginning of DMD ($p<.0001$) and number of T2W hyperintense MRI lesions ($p<.01$), were significant especially when comparing cohorts 1 and 3. Annual number of visits ($p<.001$) and frequency of imaging studies ($p<.001$) were also noteworthy. On follow up, ARR ($p<.0001$), EDSS worsening more than 1 point confirmed at 6 month ($p<.0001$), NEDA 3(no relapses, no Gd+ and/or new T2W lesions, no EDSS progression) ($p<.0002$) and annualized corpus callosum index (CCI) loss ($p<.001$) was also relevant. All differences had more impact when comparing first and third cohorts. Conclusion. Prompt and early institution of treatment had a positive impact on inflammation (ARR and NEDA3) as well as a possible benefit on degenerative domain (EDSS and CCI loss). Our findings suggest that optimization of standards of care can positively impact on long term disease.

Contact: FERNANDO FARIA ANDRADE FIGUEIRA - fernando@ffigueira.net

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57979

Title: PEDIATRIC ACUTE DEMYELINATING SYNDROMES: RESULTS FROM COHORT ANALYSIS FOR A BETTER ADULT LIFE

Authors: Tânia Regina Dias Saad Salles; Alessandra Augusta B. Penna e Costa; Lúcio José de Santa Ignêz; Ana Paula Rodrigues Lazzari Amâncio; Miriam Ribeiro Calheiros de Sá; Maria Luciana de Siqueira Mayrink;
Institution: INSTITUTO FERNANDES FIGUEIRA

Abstract: INTRODUCTION: The 2013 International Pediatric MS Study Group report brings awareness to the difficulties in managing the diagnostic work-up and treatment of Pediatric Acute Demyelinating Syndromes (ADS), and highlights their differences from adult onset forms and the need for pediatric guidelines.Taking into account that pediatric ADS course with increased inflammatory response, frequent relapses, long term disabilities and quality of life losses, a specialized outpatient clinic to follow-up children with ADS was created in our hospital. Cohort analysis of these patients and work-up/therapeutic strategies are described in this study. METHODOLOGY: Prospective cohort analysis from a Pediatric ADS clinic population over the past year. RESULTS: Twenty seven patients (11 boys), mean age of 7.3yo (range: 1.8-13yo), at their first episode of ADS were seen in clinic, and protocols were created to be used through their differential diagnosis, relapses and remission phases. five presented with multiple sclerosis (MS), 4 with Acute Disseminated Encephalomyelitis (ADEM), 5 with Neuromyelitis Optica (NMO), and 13 with Clinically Isolated Syndromes. Seven patients presented ADS symptoms prior to temporal-spatial dissemination diagnosis. Serum from all patients were tested for inflammatory biomarkers: IgG index calculation, oligoclonal bands, lymphocyte counts, cytokines (IFN-gamma, TNF-alpha, IL-17, IL-4 and IL-10). Currently, five patients with MS are treated with subcutaneous Interferon beta-1A. NMO is treated with Azathioprine or Glatiramer acetate or Micofenolato. Immunotherapy treatment is used for ADEM with good response. CONCLUSION: This preliminary cohort analysis describes our current work-up and therapeutic protocols for ADS at our hospital.

Contact: LÚCIO JOSE DE SANTA IGNÊZ - lucio.santaignez@gmail.com

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57811

Title: POTENTIAL ERRORS ASSOCIATED WITH BRAIN VOLUME MEASUREMENTS IN MULTIPLE SCLEROSIS WHEN USING THE MSMETRIX PLATFORM

Authors: Yara Dadalti Fragoso; Paulo Roberto Wille; Leonardo Medeiros; Claudio Scorcine; Marcelo Abreu; Joseph Bruno Bidin Brooks; Ronaldo Maciel Dias; Juliana Avila Duarte; Luciano Farage; Alessandro Finkelsztejn; Alan Christmann Fröhlich; Marcus Vinicius Magno Gonçalves; Bruno de Vasconcelos Sobreira Guedes; Rodrigo Andre Oliveira; Fernando Coronetti Gomes da Rocha; Gutemberg Augusto Cruz dos Santos; Guilherme Lopes da Silveira; Carina Tellaroli Spedo; Carlos Bernardo Tauil; Juliana Santos Varela; Vera Lucia Ferreira Vieira;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: Brain volume measurements have taken center stage in multiple sclerosis (MS) research. Among the methods used for brain volume assessment, a new tool has been developed. It is MSmetrix (icometrix), an easy to use platform specific for MS magnetic resonance images (MRI) of the brain. The present study assessed whether the manufacturer, the magnetic field strength and the time of the day the MRI was carried out might influence the results in MSmetrix. Methods: Data on 160 MSmetrix reports from patients with MS were used for evaluation of potential confounder parameters. Results: The manufacturer of the scanner used for the patients' images was an independent factor for significantly higher (or lower) brain volume measurements. Exams performed with General Electric machines resulted in significantly higher brain volume assessments than those carried out with Phillips machines ($p = 0.03$ for whole brain volume and $p = 0.00$ for grey matter volume). Siemens machines provided intermediate volumes that were not significantly different from the other two manufacturers. The field strength determined significantly different results, with lower brain volumes typically obtained when 3 teslas was used ($p = 0.04$ for whole brain volume and $p = 0.00$ for grey matter volume). The effect size for these two different field strengths assessed using Cohen d was large for the whole brain volume ($d = 0.81$) and moderate for grey matter volume ($d = 0.72$). Conclusion: Longitudinal studies and cross sectional data for brain volume in MS must follow a rigorous protocol if these brain volumetric data are to be included in daily clinical practice.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57855

Title: PREVALENCE OF JC VIRUS: A SYSTEMATIC REVIEW OF WORLD DATA

Authors: Yara Dadalti Fragoso; Sonia Castedo Paz; Caroline Vieira Spessotto; Marina A. Camargo Pereira; Camila A. Camargo Pereira;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: The John Cunningham virus (JCV) is a human polyomavirus. Previously classified as a papovavirus, JCV belongs to the Papovaviridae family. Although the virus can infect virtually any cell, its replication is restricted to glial cells and B lymphocytes. JCV is transmitted among humans throughout life, mainly in childhood and mostly without symptoms or signs of the infection. JCV can cross the blood-brain-barrier and infect the central nervous system (CNS) where, in cases of immunosuppression, it can replicate and manifest as progressive multifocal leukoencephalopathy (PML). JCV and PML, although not discussed in the past in relation to multiple sclerosis (MS) treatments, have now become an important area of research in the field of MS therapy. The objective of the present study is to assess information on the prevalence of JCV in the population through published data. Methods: A systematic review was performed using the terms “JCV” OR “John Cunningham virus” AND “prevalence” OR “multiple sclerosis” OR “MS” OR “immunosuppression” OR “PML”. The search terms were sought for in the title or abstract and restricted to the English language. Databases included Pubmed, Medline, Scielo, LILACS and Google Scholar. Results: The initial search identified 45 papers fulfilling the criteria for complete assessment of the text. After discussion among authors, 13 papers were selected and data on the prevalence of JCV in the world was established as varying between 45% and 90% in different parts of the world. Data were obtained from 11 different countries. Most papers reporting on patients with MS concluded that circa 50% of them were JCV-antibody positive. Conclusion: Positive prevalence of JCV antibodies in serum varies in different parts of the world. Regarding patients with MS, this prevalence is similar in Brazil, North America and Europe. No specific geographic pattern of distribution of JCV was observed in the present study.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57498

Title: STUDY OF COGNITIVE IMPAIRMENT, ANXIETY, FATIGUE AND DEPRESSION IN PATIENTS WITH MULTIPLE SCLEROSIS OF BRASÍLIA, DF

Authors: IAGO BARBOSA PINTO RODRIGUES; Helena Gemayel Marques; Carina Tellaroli Spedo; Flávia Martins da Silva; Carlos Bernardo Tauil;
Institution: ESCOLA SUPERIOR DE CIÊNCIAS DA SAÚDE (ESCS)

Abstract: Introduction: Recent studies show that 45-65% of patients with multiple sclerosis have cognitive impairment. The BICAMS (Brief International Cognitive Assessment) is an appropriate test for the cognitive analysis of MS (Multiple Sclerosis). The anxiety, depression and fatigue was correlated with the test BICAMS.Material and Methods: The BICAMS, the Hospital Anxiety Scale(HAS), Hospital Depression Scale (HDS) and the Fatigue Severity Scale (FSS) were applied to 31 randomly chosen patients of both sexes, being warned before or not. The tests were applied by 3 examiners, all of whom used standards texts that was read to the patient. Results: The mean age of the patients was 44.87 years. For Symbol Digit Modalities oral Test (oral SDMT) the overall mean was 39,452. For the Brief Visuospatial Memory Test (BVMT-R), the mean was 13.12. In the California Verbal Learning Test (CVLT-II), the mean obtained was 41.41. The p-value of the tests between different genres: BVMT-R = 0.9246, Symbol Digit Modalities written Test (written SDMT) = 0.6639, HAS = 0.2802, HDS = 0.5759, for oral SDMT = 0.603. In the analysis of correlations, p-values: BVMT x CVLT = 0.002, Oral SDMT x CVLT = 0.0004, oral SDMT x BVMT = 0.0001, written SDMT X oral SDMT = 0.012, HDS x SDMT written = 0.047, HAS x HDS = 0.02, FSS x HAS = 0.013. Conclusion and discussion: The overall mean in all cognitive tests was lower than the standardized mean. In addition to the correlation between BICAMS neuropsychological tests, we have shown that fatigue is associated with anxiety and that depression has a tendency to influence performance in Symbol Digit writing modalities.

Contact: HELENA GEMAYEL MARQUES - helena_gemayel11@hotmail.com

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57916

Title: THE ASSOCIATION OF MULTIPLE SCLEROSIS AND UVEITIS IN THE BRAZILIAN POPULATION

Authors: Alice Horta Azevedo de Castro; Mariana Andrade Fontenelle; Rafael de Pinho Queiroz; Natália Cirino Talim Menezes; Daniel Vitor Vasconcelos Santos; Wesley Ribeiro Campos; Juliana Machado Santiago Santos Amaral; Rodrigo Gonçalves Kleinpaul Vieira; Pâmela Emanuele Lacerda; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background – Multiple sclerosis and uveitis are immune-mediated disorders that may concomitantly occur in some individuals. Although the prevalence of this association has been established in populations from different countries it is still unknown in Brazil. Objectives – (1) To investigate the prevalence of the association between MS and uveitis in a cohort of MS patients and in a cohort of uveitis patients in Brazil. (2) To compare the prevalence of this association in Brazilian population with those found in other countries. Methods – We retrospectively reviewed the medical records of a cohort of MS patients consecutively seen at CIEM MS Research Center and of a cohort of uveitis patients consecutively seen at the Uveitis Clinics of the Federal University of Minas Gerais Medical School, in Belo Horizonte, Brazil. MS patients met McDonald 2010 diagnostic criteria whereas uveitis was defined according to the Standardization of Uveitis Nomenclature. Results – The MS cohort comprised 628 patients from CIEM MS Research Center whereas the uveitis cohort comprised 3683 patients from the Uveitis Clinics. Ninety patients from the uveitis cohort had intermediate uveitis. Five patients in the MS cohort and one patient in the uveitis cohort met diagnostic criteria for MS and uveitis. conditions. The prevalence of uveitis among MS patients was 0.7%, whereas the prevalence of MS among uveitis patients was 0.03%. The prevalence of MS among intermediate uveitis patients was 1.1%. Four patients with the association of MS and uveitis had intermediate uveitis and one had chronic anterior uveitis. All were women and had ages from 24 to 48 years. Similar studies were conducted in the USA, Canada, some European countries, Egypt and Iran, showing prevalence from 0.65% to 36.7%. Conclusion - The prevalence of the association of MS and uveitis in Brazil is low as compared with most cohorts from other countries. Genetic and environmental factors may account for the difference.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: Epidemiology and MRI

Code: 57972

Title: THE CENTRAL VEIN SIGN IN MS: A BIOMARKER EVALUATED IN A 3T MRI SCANNER

Authors: Bruna da Silveira Arruda; Thaylla Maybe Bedinot da Conceição; Régis Augusto Reis Trindade; Vanessa Döwich; Lillian Gonçalves Campos; Fernando Araujo Leiria; Sandra Raquel Lermen Polita; Maurício Anés; Juliano Adams Pérez; Alessandro Finkelsztejn; Juliana Ávila Duarte;
Institution: HOSPITAL DAS CLÍNICAS DE PORTO ALEGRE

Abstract: Introduction: The venocentric distribution of lesions exists in all multiple sclerosis(MS) clinical phenotypes. The central vein sign(CVS) has recently been proposed as a novel MRI biomarker to improve the accuracy and speed of MS diagnosis. Evidence indicates that the CVS may have the ability to accurately differentiate MS from mimicking conditions, and describes that CVS are more prevalent in periventricular lesions and decreases with proximity to the neocortex. The studies that evaluate CVS in 3T are rare, mainly using the fusion FLAIR and SWIp (FLAIR*) sequences. The aim of this study is to show illustrative cases of the most frequent location of CVS using FLAIR* for assessment of white matter lesions (WMLs). This technique is well suited to routine imaging of WMLs and optimizes the observation of WMLs. Materials and Methods: Unlike previous studies, we used the fusion of the FLAIR* to evaluate the WMLs that present the CVS, their aspect and distribution in the fusion of FLAIR*. We selected five patients which fulfilled the revised McDonald criteria for MS that underwent MRI in a 3T scanner, image interpretation was performed on a standard picture archiving workstation. Results: Using FLAIR*, CVS was seen in juxtacortical, periventricular and deep white matter cerebellar hemisphere, most frequently in the periventricular zone. Although these lesions were also visualized using the FLAIR sequence, their fusion (FLAIR*) was more accurate to evidence the WMLs and evidence the CVS, including making clear lesions not perceived in this sequence. Discussion and Conclusions: Flair* has been demonstrated to be a newly technique that allows in vivo evaluation of WMLs as it was recommended in the NAIMS Cooperative consensus in 2016. In this pilot study, we observed that SWIp and FLAIR fusion is very promising tool to evaluate CVS in 3T scanner and allows to identify MS WMLs.

Contact: BRUNA DA SILVEIRA ARRUDA - bsarruda@hcpa.edu.br

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57450

Title: A CASE OF MS-ASSOCIATED EPILEPSY REAPPEARANCE

Authors: Flávia Barata Alcântara; Benito Pereira Damasceno; Luciana Akemi Yasuda Suemitsu;
Institution: UNIVERSIDADE ESTADUAL DE CAMPINAS

Abstract: Introduction: Studies show a higher prevalence of epilepsy in MS patients, but it remains uncertain whether MS plays a causative role, is an epilepsy trigger or if common factors are involved in their patophysiology. In previous studies, seizures starting many years before MS diagnosis were considered not having any relationship with MS. Case: a 25-year-old male patient had focal seizures with secondary generalization between ages of 7 and 13, treated with AEDs until the age of 16. Similar seizures began at age of 23, for 3 months, with an episode of atonic seizure with postictal drowsiness. At this time, he had episodes of urinary incontinence, irritability and excessive crying. Now he presents mioclonic and cognitive seizures twice monthly, sometimes progressing to tonic-clonic, with postictal drowsiness and confusion. Patient´s history includes migraine and cigarette smoking, and his uncle had epilepsy. Physical examination shows reduction of vibratory sense in left inferior limb. Oligoclonal bands were positive in CSF. Interictal EEGs were normal. Cranial MRI showed dissemination in space with multiple foci of T2-hyperintensity signals in subcortical white matter, periventricular and subependimary areas, including corpus callosum, in pons base and in the middle cerebellar peduncle. Infratentorial lesions were not visualized in previous MRI, showing dissemination in time. He received the diagnosis of relapsing-remitting MS, currently treated with betainterferon, carbamazepine, valproate and clobazam. Discussion: In this case, seizures similar to the initial ones were restarted, indicating reactivation of previous epileptogenic foci. However, seizures changed pattern, probably due to MS inflammatory activity. Conclusion: In this patient, the restarting of epilepsy coinciding with the emergence of MS symptoms suggests MS may have a causative role, which has been observed in cases of MS patients debuting with epileptic seizures.

Contact: FLÁVIA BARATA ALCÂNTARA - flavinabarata@gmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57494

Title: ANALYSIS OF RESPIRATORY MUSCLES STRENGTH AND FATIGUE IN PEOPLE WITH MULTIPLE SCLEROSIS

Authors: Noemy Ferreira de Castro; Marcia Regina Garanhani; Viviane de Souza Costa; Vinicius Aparecido Yoshio Ossada; Heloisa Galdino Gumiero Ribeiro; Michelle Moreira Abujamra Fillis; Maria Isabel Milhorini Teixeira; Jessica Adriele Dias; Jaqueline Galvão;
Institution: INSTITUTO FILADÉLFIA DE LONDRINA - UNIFIL

Abstract: Objective: To evaluate respiratory muscle strength and fatigue levels in patients with MS. Methods: Cross-sectional study conducted at the Clinic of UniFil physiotherapy, by applying the identification form, questionnaire FSS fatigue, Expanded Scale Disability Status (EDSS) assessment of respiratory muscle strength through manovacuometry in participants with MS members ALPEM. Data were analyzed using SPSS, version IBM20. Results: We studied 10 MS patients, mean age 41 ± SD 12.98 years.The median MIP was 58 cmH20 (28-140) and the median MEP was 48 cmH2O (40-92). The median FSS was 50 (15-63), and 8 (80%) had a score ≥ 28, indicative of the presence of fatigue, Spearman correlation between FSS and MIP was ρ = 0.411 (moderate) and between FSS and MEP was ρ = 0.215 (weak). Conclusion: the study showed reduced respiratory muscle strength of the sample, as well as high prevalence of fatigue, but there was no statistically significant association between variables. It is suggested that further studies be carried out to a greater number of participants.

Contact: MARIA ISABEL MILHORINI TEIXEIRA - isabelmilhorini@gmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57471

Title: ANTI-GAD ENCEPHALITIS: A CASE REPORT

Authors: Daissy Liliana Mora Cuervo; Angelica Dal Pizzol; Sheila Cristina Ouriques Martins; Daniel Pretto Schünemann; Artur Schumacher Schuh;
Institution: HOSPITAL MOINHOS DE VENTO

Abstract: Introduction: Recently the discovering of specific antibodies against the central nervous system had led to the reclassification of some neuropsychiatric disorders that were considered without a clear etiology. In the spectrum of this disorders we could find the classic paraneoplastic syndromes and the autoimmune disorders with antibodies to membrane-bound or synaptic antigens, also called autoimmune encephalitis. Specific syndromes and antibodies are identified every day Immune-mediated cerebellar ataxias include cerebellar ataxia associated with anti-GAD antibodies. Material and Methods: We report a case of anti-GAD encephalitis and review the literature about the topic. Results: A 28 years old woman, who came to our hospital with a history of cerebellar ataxia that began 8 years earlier, a history of a refractive status epilepticus 3 months before the initial admission with an abnormal signal in the cortico-subcortical transition of the right frontal lobe in the cranial MRI. She came with a new status epilepticus that was treated and resolved leading to worsening of the cerebellar syndrome and neuropsychiatric symptoms. After 2 months, she developed a new refractory status epilepticus, without another evident case it was decide to treat as an autoimmune encephalitis with IV Ig, with recovery to the basal status of the patient. After some days, we receive the results of the labs that showed a positive serum anti GAD antibodies leading to the diagnosis of an Anti-GAD encephalitis Conclusion: As the knowledge of the antibodies an syndromes is increasing, we will have in mind that autoimmune diseases as Anti-GAD encephalitis could be part of our clinic and it is necessary to take it in consideration when we are studying and investigating our patients.

Contact: DAISSY LILIANA MORA CUERVO - lilianamoracuervo@yahoo.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57491

Title: ANTI-NMDAR ENCEFALITIS: WHEN CLINICAL PRESENTING FEATURES MAY INDICATE THE BEST APPROACH

Authors: Verônica Tavares Aragão; Lucas Silvestre Mendes; Paulo Ribeiro Nobrega; Mateus Mistieri Simabukuro; Antonia Rosivalda Teixeira Marinho; Glauber de Menezes Ferreira; Tiago Pinho Feijó; Gabriela Joca Martins; Fernanda Martins Maia;
Institution: HOSPITAL GERAL DE FORTALEZA

Abstract: INTRODUCTION: ANTI-NMDA RECEPTOR ENCEFALITIS CLINICAL MANEJAMENT IS STILL NOT FULLY DETERMINED. THE EARLY PRESENCE OF SOME CLINICAL FEATURES MAY IMPACT ON THERAPEUTIC DECISIONS. OBJETIVE: TO COMPARE THE CLINICAL PRESENTATION AND MANEJAMENT OF A SERIES OF INPATIENTS WITH ANTI-NMDAr ENCEFALITIS. MATERIALS AND METHODS: A RESTROSPECTIVE ANALYSIS BASED ON MEDICAL RECORDS WAS PERFORMED. RESULTS: CASE 1: 26 YEARS OLD FEMALE, ADMITTED WITH A 15-DAY HISTORY OF ABNORMAL BEHAVIOR AND INVOLUNTARY MOVEMENTS, WHICH LED TO A CATATONIC STATUS AND MUTISM. ON ADMISSION, THE PATIENT PRESENTED MULTIPLE INVOLUNTARY MOVEMENTS, WTH DYSTONIC AND CHOREO-ATHETOTIC FEATURES, ASSOCIATED WITH DYSAUTONOMY. CASE 2: 24 YEARS OLD FEMALE, ADMITTED FOR ABNORMAL BEHAVIOR ON THE PAST 45 DAYS, FOLLOWED BY MUTISM AND DIFFUSE HYPERTONIC POSTURE, ALSO PRESENTING PROEMINENT FACIAL AND LINGUAL INVOLUNTARY MOVEMENTS. CASE 3: 22 YEARS OLD MALE, PRESENTING A 30-DAY HISTORY OF ABNORMAL BEHAVIOR AND NEW ONSET EPILEPTIC SEIZURES, FOLLOWED BY MUTISM AND DYSTONIC FEATURES, ASSOCIATED WITH ABNORMAL INVOLUNTARY OROFACIAL MOVEMENTS. ALL PATIENTS HAD POSITIVE ANTI-NMDAr TESTING. LUMBAR PUNCTURE REVEALED LINFOCYTIC PLEOCYTOSIS. CASE 1 HAD THE HIGHEST CELL COUNT (337) AND A FLOWER CELL FINDING WAS DESCRIBED. DELTA BRUSHES WAVES WERE DETECTED IN CASES 1 AND 3. ABNORMAL RMI WAS FOUND ONLY IN PATIENT 1 (INSULA HYPERSIGNAL ON T2 AND FLAIR). ALL PATIENTS WERE TREATED WITH METHYLPREDNISOLONE FOLLOWED BY IVIG. CASE 1 NEEDED ADITIONAL THERAPY WITY RITUXIMAB. ALL PATIENTS HAD CLINICAL IMPROVEMENT AND ARE NOW FUNCTIONALLY INDEPENDENT. DISCUSSION AND CONCLUSION: NMDAr ENCEFALITIS CLINICAL FEATURES MAY INDICATE PATIENTS WHO NEED A MORE AGGRESSIVE APROACH. AS SEEN IN PATIENT 1, ALTHOUGH SHE HAD THE SHORTEST TIME OF ABNORMAL BEHAVIOR, THE PRESENCE OF MULTIPLE ABNORMAL FINDINGS COULD INDICATE THE NEED FOR MULTIPLE IMUNOSSUPRESSIVE STRATEGIES.

Contact: VERÔNICA TAVARES ARAGÃO - veronicatavares.med@gmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57492

Title: ANTI-NMDAR ENCEPHALITIS IN A 5-YEAR-OLD BOY AFTER VIRAL ENCEPHALITIS: CASE REPORT AND REVIEW OF THE LITERATURE

Authors: Rafael Canani Sommer; Bianca Zanette de Albuquerque; Bruna Klein da Costa; Douglas Kazutoshi Sato;
Institution: PONTIFICA UNIVERSADE CATOLICA DO RIO GRANDE DO SUL

Abstract: Introduction: Anti-NMDAr encephalitis is the most common autoimmune encephalitis (AE). Pediatric patients present movement disorders and seizures rather than psychiatric symptoms seen in adults. It is hypothesized that viral encephalitis could trigger AE. We report a 5 years-old boy diagnosed with NMDAR-Ab encephalitis triggered by viral central nervous system infection and discuss the diagnostic and therapeutic challenges of this condition. Case report: A previously healthy 5-year-old boy presented with tonic-clonic seizures evolving in 2 weeks with somnolence, involuntary limb movements and tachypnea. Brain MRI revealed temporal lobes bilateral T2 hyperintense lesions without gadolinium enhancement. Cerebrospinal fluid (CSF) showed 121 cells/mm³, 467 mg/dl proteins and normal glucose. CSF bacteriological analysis and viral PCR were negative. Empirical treatment with intravenous (IV) acyclovir was performed for 10 days. Given the lack of clinical response and the hypothesis of AE, he was treated with IV methylprednisolone (MP) with partial clinical recovery followed by subacute worsening after 4 weeks. He was tested for anti-NMDAR and resulted positive (CSF and serum). He received more 2 courses of IVMP alternated with 2 doses of IV immunoglobulin and 375 mg/m2 of rituximab. He was symptomatically treated with valproate and risperidone. At 8-month follow-up visit, the patient was seizure-free, with no abnormal movements, without sleep-wake disturbance, fully ambulatory without assistance with some interaction and emitting sounds. Conclusion: Anti-NMDAr encephalitis might share features with other conditions such as viral encephalitis. Recently, it has been suggested that viral CNS infections might trigger an autoimmune response that could promote the development of AE. Infectious etiologies must be excluded before initiating immunosuppressive treatments for AE. Early diagnosis and treatment is associated with reduced mortality and risk for neurological sequelae.

Contact: RAFAEL CANANI SOMMER - rafaelcasommer@gmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57613

Title: ARBOVIRAL INFECTIONS AND THE RISK OF DEVELOPMENT OF NEUROLOGICAL COMPLICATIONS.

Authors: Rachel Dias Molina; Ricardo Zalewsky; Aline de Moura Brasil Matos; Fernanda Martins Maia; Rauli Costa Pires; Danielle Malta Lima; Solange Dornelas Mesquita; Flávia Falcão Albuquerque; Maria Lúcia Brito Ferreira; Denise Cantarelli Machado; Douglas Kazutoshi Sato;
Institution: PONTIFÍCIA UNIVERSIDADE CATÓLICA DO RIO GRANDE DO SUL

Abstract: Introduction: There was a sharp increase of patients with peripheral nervous system (PNS) disorders such as Guillain-Barré Syndrome (GBS) and central nervous system (CNS) disorders after the outbreak of the arbovirus infections in Brazil. However, it is unclear which patient is at an increased risk to develop neurological complications after Zika (ZIKV), Chikungunya (CHIKV), and Dengue (DENV) infections. Objective: To evaluate the seropositivity for ZIKV, CHIKV and DENV in patients with neurological complications after arboviruses infections. Methods: We evaluated 35 patients from 2 centers in the Northeast of Brazil (Fortaleza and Recife) who presented with neuroimmunological disorders after arboviruses infection. We detected serum IgM and IgG antibodies against ZIKV, CHIK, DENV using ELISA kits Results: Among the total of 35 patients, the majority (n=21) had PNS manifestations – nineteen (90.4%) had GBS and two patients (9.5%) developed chronic inflammatory demyelinating polyradiculoneuropathy (CIDP). Thirteen of 21 (61.9%) patients were positive for two viruses - 12/13 DENV+ZIKV and 1/13 DENV+CHIKV. Two of 21 (9%) patients were positive for all three viruses DENV+CHIKV+ZIKV. Six of 21 (28.6%) patients were positive only for DENV. The remaining 14/35 (40%) patients developed CNS complications (myelitis, encephalitis and optic neuritis). Eight of 14 (57%) patients had positivity for two or three viruses - 2/14 ZIKV+DENV, 3/14 CHIKV+DENV, 3/14 DENV+CHIKV+ZIKV. The remaining six patients were positive for one virus (5/14 DENV; 1/14 CHIKV). Conclusion: Multiple viral infections may increase the risk of development of neurological complications.

Contact: RACHEL DIAS MOLINA - rachelmolina16@hotmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57379

Title: ASSESSMENT OF FUNCTIONAL CAPACITY IN PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Noemy Ferreira de Castro; Maria Isabel Milhorini Teixeira; Marcia Regina Garanhani; Heloisa Galdino Gumieiro Ribeiro; Luana Paixão; Viviane de Souza Pinho Costa; Vinícius Aparecido Yoshio Ossada; Michelle Moreira Abujamra Fillis;
Institution: UNIFIL - CENTRO UNIVERSITÁRIO FILADÉLFIA

Abstract: Introduction: Multiple sclerosis is a demyelinating disease of the central nervous system, with idiopathic etiology, affecting young adults, particularly predominant in women. Signs and symptoms are variable, including emotional and motor changes, whereas fatigue is the most frequent symptom. Objective: To verify the correlation between functional capacity of exercise and fatigue in people with Multiple Sclerosis. Methodology: This is a cross-sectional study, composed of 10 individuals diagnosed with multiple sclerosis, members of ALPEM. Patients were assessed through socio-demographic questionnaires, the Expanded Disability Status Scale (EDSS), the six-minute walk test (6MWT), and the Modified Fatigue Impact Scale (M-FIS). The collected data were analyzed through the SPSS program, version IBM20. Results: The best average rate for 6MWT was 446.80 ± 85.43 meters. People with higher EDSS scores walked a shorter distance in the 6MWT in comparison to those with lower EDSS scores, however, there was no statistically significant difference ($p = 0.075$). The average rate of fatigue was 37.10 ± 26.29. When comparing fatigued and non-fatigued groups, fatigued people walked greater distance than those without fatigue, and there was no statistically significant difference between the average rates of both groups ($p = 0.243$). Conclusion: It has been concluded that people with MS have a reduced walking distance when compared to the distance predicted for the healthy population, and that the higher the staging, the greater the impairment of the exercise capacity. Fatigue was not a limiting factor for the performance in the walking test of this population.

Contact: NOEMY FERREIRA DE CASTRO - noemy.castro@outlook.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57973

Title: CLINICAL CHARACTERISTICS OF PEDIATRIC-ONSET MULTIPLE SCLEROSIS IN CHILDREN UNDER 10 YEARS OF AGE

Authors: Ana Luiza Pereira Câmara Araújo; Renata Barbosa Paolilo; José Albino Paz; Samira Luisa Apóstolos Pereira; Dagoberto Callegaro;
Institution: USP-SP

Abstract: INTRODUCTION: Multiple sclerosis (MS) is a rare chronic inflammatory and demyelinating disease that can begin in childhood and progress with severe disabilities in adult life. Among patients with MS, less than 3% starts symptoms below 10 years and the characteristics of this population are still little known. We describe the clinical profile of patients followed in a tertiary neuropediatric centre in Brazil who started MS with 10 years old or less, with emphasis on their clinical evolution. MATERIALS AND METHODS: We analyzed the data contained in the medical records between 2007 and 2017 from patients who met the inclusion criteria: diagnosis of MS according to the McDonald's criteria and age ≤10 years. RESULTS: A total of 11 children were assessed. The female-to-male ratio was 1:2.6, with a median follow-up of 4.3 years (0.7-13). The median age at the first symptom was 8 years (3-10) and the median number of relapses was 3 (2-5). Cinical manifestations in the first attack were motor symptoms (72.7%), ataxia (36.3%), cranial nerve involvement (27.2%), sensitive symptoms (9%). Patients had EDSS ranging from 1.0 to 6.0 (median: 3.0) at the first consultation with the neuropediatrician and from 0 to 9.5 (median: 2.0) at their last evaluation. 8 children received disease-modifying therapy (DMT): glatiramer acetate (18.75%) and beta interferon (68.75%). DISCUSSION AND CONCLUSION: There are particularities in the presentation of MS in the pediatric population and the group bellow 10 years old is still not well known. In our study, there was a predominance of boys and a low frequency of disability during follow-up. Unexpectedly, few patients had optic neuritis or sensory symptoms at the first attack.

Contact: ANA LUIZA PEREIRA CAMARA ARAUJO - acluiza@hotmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57960

Title: CONTROL OF EXPERIMENTAL ENCEPHALOMYELITIS BY FUNGAL DERIVATIVES: PRELIMINARY RESULTS

Authors: Thais Fernanda Campos Fraga da Silva; Luiza Ayumi Nishiyama Mimura; Larissa Lumi Watanabe Ishikawa; Larissa Ragozo Cardoso Oliveira; Sofia Fernanda Gonçalves Zorzella-Pezavento; Ana Angélica Henrique Fernandes; Carlos Alberto Ferreira de Oliveira; Alexandrina Sartori;
Institution: IBB - UNESP/BOTUCATU

Abstract: Introduction. Multiple sclerosis (MS) is an autoimmune disease that affects the central nervous system (CNS) whose cure is not available yet. Major advances have occurred in the development of disease-modifying treatments and these new approaches include dietary factors. Evidences observed in experimental models and MS patients indicate that fungal derivatives can modulate the immune response and decrease disease severity. In this context, we evaluated the therapeutic potential of two Saccharomyces cerevisiae derivatives that are being used as dietary supplements, Goldcell BetaGlucan® and ActiveMOS®, in experimental autoimmune encephalomyelitis (EAE). Material and Methods. C57BL/6 female mice received the supplements (1 mg/day/mouse) by gavage during 14 days before (prophylaxis) or 14 days after (therapy) EAE induction. Clinical parameters were daily assessed until 18 days after EAE induction. At this time point the following parameters were assayed: production of encephalitogenic cytokines by peripheral lymph nodes, percentage of regulatory T cells (Treg) in mesenteric lymph nodes and oxidative stress at the CNS. Results. Both supplements determined significant reduction in EAE incidence and disease severity in both, prophylaxis and therapy. Despite protection, in the prophylactic protocol, Goldcell BetaGlucan® increased IL-6, IL-17 and TNF-α, and ActiveMOS® increased TNF-α production, in comparison to the EAE control group. A lower percentage of Treg was observed in mice therapeutically supplemented with Goldcell BetaGlucan®. Increased levels of the antioxidant enzymes glutathione peroxidase and superoxide dismutase associated with reduced lipid hydroperoxide levels were usually triggered by both supplements. Conclusion. Dietary supplementation with these fungal derivatives could contribute to control EAE and MS development. A local downregulation of oxidative stress is probably underlying this protective effect.

Contact: THAIS FERNANDA DE CAMPOS FRAGA DA SILVA - thaisfragasilva@gmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57952

Title: EDUCATION LEVEL, COGNITIVE RESERVE AND COGNITIVE IMPAIRMENT IN MULTIPLE SCLEROSIS

Authors: Carolina de Medeiros Rimkus; Isabella Avolio; Samira Luisa Apostolos Pereira; Maria Fernanda Mendes; Eliane C Miotto; Dagoberto Callegaro; Claudia da Costa Leite;
Institution: UNIVERSITY OF SÃO PAULO, SÃO PAULO, BRAZIL / VU MEDICAL CENTER, AMSTERDAM, THE NETHERLANDS

Abstract: Background: Low education attainment is associated with lower cognitive reserve and increased risk of progressive disability in multiple sclerosis (MS). The aim of this study is to explore the effects of education level on the cognitive performance in a Brazilian cohort of MS-patients. Methods: The study included 136 MS patients and 65 matched healthy controls (HC), classified in eight education levels, according to Brazilian education structure and divided in low-education (≤ 12 years of education) and high-education (> 12 years) groups. Subjects underwent extensive neuropsychological tests examining seven cognitive domains. Test results were converted to standard z-scores. Subjects that had z-scores lower than -1.5 in two or more domains were considered cognitively impaired (CI). Average cognition was defined by averaging the z-scores of all domains. We analyzed the frequency of cognitive impairment in the MS groups and applied automatic linear modeling to the patients' group using average cognition as target; education level, Expanded Disability Status Scale (EDSS) scores, T2 lesion loads, disease duration, age of disease onset, age and gender as predictors. In the HC group, automatic linear modeling included only age, gender and education level as predictors. To determine the cognitive domains more affected in the different education level groups in HC and MS patients, we applied automatic linear modeling using the education group as target and the performance in each domain as predictors, correcting for age and gender. Results: The low-education group had a higher frequency (57.5%) of CI patients, compared to the high-education group (22.5%). Worse average cognition was associated with higher T2-lesion load, lower education level and male sex. The low-education group had higher EDSS and T2-lesion load. In MS-patients, lower education level was associated with lower IQ, worse information processing speed and visuospatial memory. In the HC, lower education was associated with worse verbal memory, attention, executive function and a lower IQ. Conclusion: Low education levels are associated with worse cognitive performance and higher disability, suggesting lower cognitive reserve and higher susceptibility to neuronal dysfunction associated to MS-related tissue damage.

Contact: CAROLINA DE MEDEIROS RIMKUS - carolina.rimkus@usp.br

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57943

Title: EVALUATION OF TUMOR NECROSIS FACTOR ALPHA AND INTERLEUKIN-10 IN PERIPHERAL BLOOD AND GENE EXPRESSION IN PATIENTS WITH MULTIPLE SCLEROSIS TREATED WITH INTERFERON-BETA

Authors: Denise Sisterolli Diniz; Iara Barreto Neves Oliveira;
Institution: UNIVERSIDADE FEDERAL DE GOIÁS

Abstract: Introduction. The tumor necrosis factor alpha (TNF-α) and Interleukin-10 (IL-10) have been studied in Multiple Sclerosis (MS). The effect of Interferon-beta (IFN-β) in those and disease severity as measured by the Expanded Disability Status Scale (EDSS), is still investigated. The method of blood cultures, not yet reported in MS, evaluate the peripheral cell activation. Objective. To evaluate the concentrations and gene expression of TNF-α and IL-10 in the peripheral blood of patients with MS treated with IFN-β. Methods. Patients were recruited at the Clinical Hospital of the Federal University of Goiás and healthy individuals. Blood collections, blood cultures with lipopolysaccharide (LPS), Toll-like 4 receptor agonist (TLR4), and Pam3Cys, TLR2 agonist, and the gene expression by real-time polymerase chain reaction were performed. Non-parametrics tests and Spearman correlation were used, with $p<0.05$. Results.The sample was 19 patients treated with IFN-β, 6 untreated and 25 healthy controls. Patients treated with IFN-β produced less TNF-α after stimulation with Pam3Cys and more IL-10 after LPS compared to healthy controls. In a sub-analysis, TNF-α did not differ, but the induction of IL-10 was higher after LPS in the treated than in the untreated. Baseline IL-10 concentrations were lower in untreated patients than in controls. There was no significant correlation between cytokines and EDSS and disease time, but there was a positive correlation between TNF-α and IL-10 gene expression in patients treated with IFN-β. Conclusions.The results reaffirmed the role of IL-10 in MS and showed that IFN-β can elevate IL-10 after activation of TLR4 and reduce TNF-α after activation of TLR2. Gene expression of cytokines was positively correlated in treated with IFN-β, suggesting that there are other mediators that increased TNF-α, concomitant with the IL-10 induced by the drug. The study about these mediators can provide perspectives of new targets to be investigated in MS.

Contact: IARA BARRETO NEVES OLIVEIRA - iarabarreto@live.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57942

Title: LYME OPTIC NEURITIS - A CASE REPORT

Authors: Diogo Haddad Santos; Antonio Yasbec Chiarella; Maria Angela Amaral Lorenti; Eric Pinheiro de Andrade; Herval Ribeiro Soares; Tais de Almeida Rocha;
Institution:

Abstract: Introduction:Although ocular involvement is rare in Lyme borreliosis, various ocular manifestations have been described including optic neuritis (ON) . Isolated forms, without any other neurological symptoms, of Lyme ON are rare, and a few cases have been described. Objective:To report a case of optic neuritis as the only presentation in a patient with a diagnosis of lyme disease.Methods: Review of patient medical records and literature review.Case Report: MCF, male, 20 years old, brought to the HSPE with blurred vision in the left eye (LE), evolving with worsening of visual acuity (VA) in 3 days and associated with headache and fever. Neurological examination showed anisocoric pupils, with left pupillary defect, fundus of the eye with papilla edema on the left, visual campimetry by confrontation with presence of cecocentral scotoma in LE, VA RE: 20/40; LE: 20/200.It was evidenced infiltration of the entire path of the optic nerve and worse to the left, being suggested to expand investigation for lymphoproliferative, infiltrative and infectious diseases. Patient was hospitalized and during that period a extensive etiological investigation was performed. Brain and orbits MRI were normal. The search for Borrelia in CSF and serum was positive for Lyme with W. Blott IgM positive. Patient was treated with Rocefin for 21 days and pulsetherapy with Methylprednisolone 1 g for 5 days with significant improvement of VA LE: 20/30, RE: 20/25). Discussion / Conclusion:In conclusion, ON is one of the most common manifestations of nervous system involvement caused by several autoimmune, inflammatory, and infection diseases. Lyme ON is rare but should be included in the differential diagnosis in unexplained cases, particularly in Lyme endemic areas. Careful and detailed examination and investigation are warranted to make the diagnosis. We report this case to increase awareness of clinicians to include Lyme disease in differential diagnosis of ON for unexplained cases of ON.

Contact: DIOGO HADDAD SANTOS - digohs@hotmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57889

Title: MDMA AS MULTIPLE SCLEROSIS MIMICS – REPORT OF THREE CASES

Authors: Diogo Haddad Santos; Roberto Magalhaes Carneiro de Oliveira;
Institution:

Abstract: Introduction: Recognizing disorders that mimic multiple sclerosis (MS) is essential, not only for the correct diagnosis, but also to avoid administration of a wrong and potentially risky therapy. Several neurological conditions have been identified as mimics of MS, and can be included the use of a series of drugs and toxins. The 3,4-methylenedioxy-N-methylamphetamine (MDMA) is a drug of the amphetamine family that acts as potent serotonin releasing agent, but also acts on dopamine and norepinephrine.In this work we will show three cases of demyelinating events occuring after the use of MDMA. Objectives: To report three cases of demyelinating lesions that occurred after the use of MDMA and review of literature on the topic. Methods:Review of medical records of patients cited and review of literature based on publications on the topic. Case Reports: Case 1- Woman, 32 yo, pharmaceutical industry manager, presented visual blur in left eye after a party in Paris and after two years she presented visual blur.Case 2 – Man, 31 yo, hedge fund manager, complain atypical trigeminal pain, without trigger point or ameliorating factors. MRI showed demyelinating lesions. Case 3 – Man, 39 yo, dentist, presented cervical pain with tingling in right hand. Normal MRI. After one month he returned with tingling and weakness in both hands. New MRI showed demyelinating lesion in anterior portion of spinal cord.The use of MDMA is common to all patients.In all cases a long research for demyelinating disease was done, with negative results. Discussion/Conclusion: As well as the reported cases reviewed, there is a strong temporal correlation between drug ingestion and onset of lesions.It is suggested that the acute inflammatory conditions described above may be triggered by a special form of hypersensitivity vasculitis and another revised hypothesis would be for MDMA to induce delayed-type hypersensitivity (DTH) via serotonin release with consecutive activation of effector T cells.

Contact: DIOGO HADDAD SANTOS - digohs@hotmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57473

Title: MOLECULAR ANALYSIS OF HLA-DR AND VDR GENES POLYMORPHISMS IN MULTIPLE SCLEROSIS (MS) SUSCEPTIBILITY IN A RIO DE JANEIRO STATE

Authors: Luciana Ferreira do Carmo; Alyssa Maia Costa; Eduardo Paradela; Max Vanderson; André Figueiredo;
Institution: IBMR - LAUREATE INTERNATIONAL UNIVERSITIES

Abstract: The multiple sclerosis (MS) is a chronic disease of the central nervous system that affects mainly young adults. This disease is characterized by the spread of demyelinating lesions in time and space. This condition may be influenced by genetic factors as heterogeneity, incomplete penetrance, polygenic inheritance and epigenetic factors, which makes this complex disease a challenge for geneticists. Despite the Human Leukocyte Antigen (HLA) DRB1*15:01 has been consistently associated with MS in nearly all populations tested, its putative interactions with others polymorphisms is now being widely searched. In the present study, we investigated the vitamin D receptor (VDR) TaqI (12q13.11) and HLA-DR polymorphisms in 75 patients and 150 health controls from Southeast of Brazil by molecular assays. The data shows no increase of risk of association in DRB1*15:01 and TaqI polymorphisms.

Contact: LUCIANA FERREIRA DO CARMO - lucianafcarmo@live.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57485

Title: NEUROIMMUNOLOGICAL MANIFESTATIONS IN PATIENTS INFECTED WITH ZIKA VIRUS.

Authors: Bianca Zanette de Albuquerque; Rachel Dias Molina; Ricardo Zalewsky; Aline de Moura Brasil Matos; Fernanda Martins Maia; Danielle Malta Lima; Rauli Costa Pires; Solange Dornelas Mesquita; Flávia Falcão Albuquerque; Maria Lúcia Brito Ferreira; Denise Cantarelli Machado; Douglas Kazutoshi Sato;
Institution: PUCRS

Abstract: Background: Clinical manifestations of Zika Virus (ZIKV) infection are usually fever, exanthema, rash, conjunctivitis, joint and muscle pain, with symptom duration of 2 to 7 days. In some patients, the virus may trigger inflammatory disorders in the peripheral nervous system (PNS) manifestations such as Guillain-Barré Syndrome (GBS) and central nervous system (CNS) manifestation like acute disseminated encephalomyelitis (ADEM) and transverse myelitis (TM). The inflammatory CNS lesions may promote encephalopathy, seizures and focal neurologic signs, while PNS involvement causes acute/subacute flaccid weakness. Objective: The present study aimed to assess clinical manifestations of patients with neurologic conditions developed after ZIKV infection. Methods: We included patients with neurological syndromes associated with ZIKV infection from two centers in the northern of Brazil (Hospital Geral de Fortaleza and Hospital da Restauração). We confirmed antibodies against ZIKV using ELISA (IgM and IgG) kits. Results: Among 18 ZIKV+ patients, 13 (72%) patients had PNS and 5 (28%) patients had CNS manifestations. Of those patients with PNS disorders, 11 patients (85%) were diagnosed with GBS and 2 (15%) patients were diagnosed with chronic inflammatory demyelinating polyneuropathy (CIDP). Among the patients with CNS syndromes, four (80%) patients had TM, and one patient presented with multiple CNS lesions compatible with ADEM. None of these patients died. Conclusions: PNS syndromes were more common than CNS syndromes associated with ZIKV infection. Despite the severe clinical disability in some cases, no death was associated with neurological complications after ZIKV infection in adults. Further studies are required to clarify the direct effects of ZIKV in the nervous system and the immunological mechanisms associated with ZIKV triggering autoimmunity against PNS/CNS antigens.

Contact: BIANCA ZANETTE DE ALBUQUERQUE - bianca.albuquerque@acad.pucrs.br

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57917

Title: ORAL TREATMENT WITH SELEMAX® CONTROLS EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS DEVELOPMENT

Authors: Juliana Helena dos Santos de Toledo; Luiza Ayumi Nishiyama Mimura; Thais Fernanda de Campos Fraga-Silva; Larissa Ragozo Cardoso de Oliveira; Larissa Lumi Watanabe Ishikawa; Ana Angélica Henrique Fernandes; Carlos Alberto Ferreira de Oliveira; Fernanda Patrícia Brito Darpassolo de Souza; Alexandrina Sartori; Sofia Fernanda Gonçalves Zorzella-Pezavento;
Institution: UNIVERSIDADE ESTADUAL PAULISTA

Abstract: Introduction: Multiple sclerosis (MS) is an inflammatory autoimmune disease of the central nervous system (CNS) that results in demyelination and axonal damage. The currently available therapies include immunomodulatory drugs with general immunosuppressive properties that increase the susceptibility to infectious agents. As these therapies have also other side effects and are not efficient in all patients, the development of new therapeutic approaches remains necessary. Since oxygen-derived free radicals play a pivotal role in MS immunopathogenesis, we evaluated the efficacy of supplementation with an antioxidant agent to control experimental autoimmune encephalomyelitis (EAE) development. In this context, we tested Selemax® -Biorigin, a dry yeast strain of Saccharomyces cerevisae containing elevated levels of organic selenium (Se). Material and methods: One day after EAE induction by immunization with myelin oligodendrocyte protein (MOG) in Complete Freund's Adjuvant plus pertussis toxin, female C57BL/6 mice received daily doses of 25 mg of Selemax® (containing 50 µg of Se) or S. cerevisae without Se until the acute EAE phase. Results: Selemax® and S. cerevisae supplementations efficiently controlled EAE symptoms, however, only the Selemax® significantly reduced the incidence and the maximum clinical score reached by the animals during the acute disease phase. Eventhough, this milder disease was not associated with a lower production of pro-inflammatory cytokines by lymph nodes cell culture. Selemax® administration significantly increased IL-10 production. Analysis of the oxidative stress in the CNS revealed that Selemax® increased the antioxidant enzyme glutathione peroxidase whereas S. cerevisae reduced the lipid hydroperoxide levels. Conclusion: These preliminary findings suggest that Selemax® supplementation has the potential to be used as an adjunct to conventional MS therapies. Financial support was provided by CAPES and Biorigin Company.

Contact: JULIANA HELENA DOS SANTOS DE TOLEDO - juhh_toledo@hotmail.com

Modality: Poster Presentation

Theme: Immunology, basic science and clinical findings

Code: 57779

Title: RELAPSING TUMEFACTIVE MULTIPLE SCLEROSIS AFTER 7 YEARS WITH NO EVIDENCE OF DISEASE ACTIVITY

Authors: Bruna Klein da Costa; Jefferson Becker; Douglas Kazutoshi Sato;
Institution:

Abstract: Introduction: Tumefactive demyelinating lesions (TDLs) are rare presentations of central nervous system demyelinating diseases and represent diagnostic and therapeutic challenges. TDLs can be the first presentation of Multiple Sclerosis (MS), with an estimated prevalence of 2:1000 cases of MS. Case report: A 19-years-old woman presented with severe disabling headache followed by first epileptic seizure. The brain MRI revealed bilateral T2 hyperintense white matter (WM) TDLs with gadolinium enhancement. The brain biopsy resulted negative for abscess or tumor. She fully recovered after empiric treatment with antibiotics, corticosteroids and phenobarbital. After 7 years asymptomatic, she presented left hemiparesis. The brain MRI showed new frontal lobe, temporal lobe and corpus callosum TDLs, and a small medullar lesion. She received intravenous methylprednisolone (IVMP) and discharged after recovery. Five months later, she developed a new hemiparesis on the contralateral (right) side. The brain MRI demonstrated new 3 hemispheric TDLs on the left hemisphere, 2 nodular WM lesions, plus 2 small WM lesions at cerebellar peduncle. The spinal cord MRI revealed a new MS-like anterior in the cervical spinal cord. Laboratory investigation was unremarkable. Serum AQP4-IgG and MOG-IgG were negative using cell based assays. Cerebrospinal fluid analysis demonstrated elevated proteins (144mg/dl) and normal IgG index (0.6). She received IVMP for 5 days followed by 5 plasmapheresis sections in alternated days with remarkable recovery. Long-term treatment with glatiramer acetate was initiated with no additional attacks in 9 months of follow up. Conclusions: The pathophysiological mechanisms of TDLs still need to be elucidated. We extensively excluded alternative diagnosis and chose glatiramer acetate to induce immunotolerance to myelin antigens, while having a good safety profile. Despite the severe initial presentation, the TDL MS cases apparently have better long-term prognosis

Contact: BRUNA KLEIN DA COSTA - brunakleinc@hotmail.com;brunakleinc@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57847

Title: A SPECIALTY CENTER CLINICAL EXPERIENCE WITH REPLACEMENT OF NATALIZUMAB BY FINGOLIMODE IN HIGH RISK PATIENTS

Authors: Aline de Moura Brasil Matos; Alexandre Coelho Marques; Samira Luisa Apostolos Pereira; Renata Faria Simm; Dagoberto Callegaro;
Institution: UNIVERSIDADE DE SÃO PAULO

Abstract: INTRODUCTION Natalizumab (NTZ) use might be limited by increased risk of LEMP depending on JC virus status, previous immunosuppressive therapy (IT) and duration of NTZ treatment. Stopping NTZ might also bring a risk of lesion reactivation after the suspension of the drug. Fingolimode (FIN) is a switch option, but less effective. OBJECTIVES Analyze functional evolution and annual relapse rate (ARR) of patients that had to leave NTZ for LEMP risk and were switched to FIN. METHODS We retrospectively review medical records of patients with EMRR and at least two out of three LEMP risk factors which switched from NTZ to FIN. Those with less than six months of the two drugs were excluded. RESULTS Eight patients fulfilled criteria. All patients had JCV index positive. We assigned group A those with previous use of IT and group B those without. All patients were female. At group A (2 patients), mean age of diagnoses was 27,5±0,7, previous NTZ ARR 1,08±0,72, mean age at start NTZ 33±2,82, years with MS at NTZ start 5,5±3,54, EDSS previous to NTZ 4,5±2,12, EDSS at the end use of NTZ 4,5±2,12, NTZ ARR 0, mean age at start FIN 36±2,83, EDSS previous do FIN 4,25±2,47, EDSS at last evaluation at FIN 4,25±2,47, FIN ARR 0, mean number of FIN infusions 19,5±16,26. At group B (4 patients), mean age of diagnoses was 19,5±2,4, previous NTZ ARR 0,49±0,17, mean age at start NTZ 29,8±3,59, years with MS at NTZ start 10±4,24, EDSS previous to NTZ 4,5±2,86, EDSS at the end use of NTZ 4,37±2,69, NTZ ARR 0, mean age at start FIN 31,75±3,59, EDSS previous do FIN 4,5±2,8, EDSS at last evaluation at FIN 4,5±3,02, FIN ARR 0,25±0,29, mean months of FIN intake 16±10,23. There was observed one relapse with one month intake of FIN. CONCLUSION There was a slight EDSS and ARR increase with FIN. Even with no statistic strength due to small sample, we considered this might be due to the lower FIN efficacy. This data is similar to previous literature and patients should be informed about FIN lower efficacy.

Contact: ALINE DE MOURA BRASIL MATOS - alinembmatos@hotmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57968

Title: ALEXITHYMIA AND BRAIN VOLUME IN MULTIPLE SCLEROSIS

Authors: Yara Dadalti Fragoso; Audred Cristina Biondo Eboni; Carina Tellaroli Spedo; Sonia Castedo Paz; Marcus Vinicius Magno Goncalves; Leonardo Medeiros; Claudio Scorcine;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: Cognitive impairment in patients with multiple sclerosis (MS) seems to correlate with brain volumes that are smaller than those expected for their gender and age. However, not all areas of the brain are related to cognition and it is possible that certain personality traits are also accompanied by specific changes in brain volume. Alexithymia, which was recently shown to be increased in patients with MS, can be described as difficulty in identifying and describing feelings. In relation to this condition, different areas of the brain are involved in such individuals' complex thinking, empathy, attention to detail and responses. The aim of the present study was to investigate whether alexithymia might be associated with brain volume changes in MS. Methods: A group of 50 patients with MS were assessed using the Toronto Alexithymia Scale (TAS) and their results ("alexithymia" n=23 or "no alexithymia" n=27) were plotted against data from their MSmetrix reports of whole-brain, grey-matter and lesion-load volumes. Only patients with mild or no depression, anxiety or cognitive dysfunction were included. Statistical analyses included the Shapiro-Wilk test, Mann-Whitney U-test, Student t test and size effect of the sample. Results: In this pilot study, if the level of statistical significance is deemed to be $p \leq 0.05$, alexithymia was not significantly correlated with disability ($p=0.52$), disease duration ($p=0.92$), whole-brain volume ($p=0.19$), grey-matter volume ($p=0.09$) or lesion-load volume ($p=0.06$). The effect size assessed in this sample was 0.48 (significance ≥ 0.51). The levels of statistical significance for the effect size and for the lesion volume were borderline. Conclusion: Psychological aspects of MS may correlate with brain and lesion volumes. It seems important to pursue this line of study, with inclusion of a larger sample of patients and individual assessment of specific brain areas.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57496

Title: ASSESSMENT OF LIFE QUALITY, SEXUALITY AND URINARY DYSFUNCTION IN WOMEN WITH MULTIPLE SCLEROSIS IN BRASÍLIA, DF

Authors: Mylena Kerolaine de Aquino Silva; Rauany Fiuza Braga Pires de Melo; Carlos Bernardo Tauil;
Institution: ESCOLA SUPERIOR DE CIÊNCIAS DA SAÚDE

Abstract: Introduction: Multiple sclerosis (MS) is a chronic, autoimmune and demyelinating disease of the central nervous system. Between 40% to 80% of the women that has MS have some kind of sexual dysfunction and 75% some degree of bladder dysfunction at some point of the evolution of the disease. Objectives: To evaluate the quality of life (QL) of the MS women patients and are monitored in the Hospital de Base do Distrito Federal (HBDF) with emphasis in the aspects concerning sexuality and urinary dysfunctions. Method: Qualitative and quantitative cross-sectional study, using interviews based on the literature with subjective questions about QL and sexual and bladder dysfunctions. There were applied surveys validated to the portuguese language and public domain, among them the Multiple Sclerosis Quality of life-54 (MSQOL-54) to all the participants of the study and, based on that, the Female Sexual Function Index (FSFI) and the King's Health Questionnaire. Results: The sample is composed by 23 patients between the ages of 21 and 65 years. Regarding the QL valuation it was obtained a score regarding physical health that varied between 77 and 1098, with 43% being below 600. Regarding the mental health valuation the score varied between 231 and 1674, with 17% being below 600. Regarding sexual function, 9 patients complained FSFI and 33,3% obtained index below 20 points (RV 2-36). In the studied sample, 11 patients presented some degree of urinary dysfunction. After the application of the KHQ and the evaluation of the sum of the perception scores of quality of life and the score of the impact of incontinency in the life of the respondents, only 36,4% presented a score bigger than 100 points (RV 200 bigger degree of impact). Conclusion: This study provided instruments to assist in the therapeutic holistic approach of MS women patients, showing how often sexual and urinary dysfunctions happen and their relevance as components of QL.

Contact: MYLENA KEROLAINE DE AQUINO SILVA - mkerolaine@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57934

Title: ASSESSMENT OF QUALITY OF LIFE IN PATIENTS WITH MULTIPLE SCLEROSIS USING ORAL X PARENTERAL MEDICATION

Authors: Moisés Antonio de Oliveira; Paulo Diego Santos Silva; Gleice Aparecida Pereira; Keila Narimatsu; Charles Peter Tilbery;
Institution: SANTA CASA DE SÃO PAULO

Abstract: Introduction: Multiple Sclerosis (MS) is a chronic disease, which affects preferably young adults. The health and well-being of these individuals may be strongly impacted by the disease and/or drug side effects, with significant interference in their carriers' quality of life. Objective: To evaluate the quality of life, through the domains of the SF-36 tool, of MS patients using oral x parenteral medication. Methods: 40 patients carrying remitting and reccurent MS, 20 of whom underwent oral, and 20 of whom underwent parenteral (intravenous, subcutaneous and intramuscular) treatment were evaluated for the impact on their quality of life through the SF-36 Quality of Life Questionnaire Tool. Results: Among the 40 patients, 69.4% were women, with a global mean age of 38 years, a disease duration of 1.5 - 8 years and an EDSS 0-5.5. The Functional Capacity domain showed a 66.94% x 54.16% (oral x parenteral treatment). Regarding the General Health Status domain, patients with oral medications showed a benefit of 16.61% (66.61% x 50%) in relation to the patients in parenteral treatment. As to the Limitation due to Physical Aspects, the difference between oral and parenteral treatment was 37.5% (68.05% vs. 30.55%). The high scores achieved by the orally treated in the SF-36 tool were directly proportional to the patients' Mental Health domain, being that these scored 75.92% while parentally treated patients only reached 33.27% Conclusion: Thus, it was perceived that the quality of life was substantially better in patients using oral medications in relation to patients who are in parenteral treatment. This fact might be associated to the way this administration route is interpreted by the patient. This is a preliminary report.

Contact: MOISES ANTONIO DE OLIVEIRA - drmoisesneuro@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57497

Title: CHANGES IN CAMPIMETRY, OPTICAL COHERENCE TOMOGRAPHY AND VISUAL FUNCTION IN PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Regia Bentes de Souza; Juliana Tessari Dias Rohr; Ronaldo Maciel Dias; Milena Magalhaes Lima; Carlos Bernardo Tauil; Ana Kariny Bezerra de Souza; Lucas Cruz Costa Leal; Felipe Moreira Dias; Aristeu Lopes Barbosa;
Institution: HOSPITAL DE BASE DO DISTRITO FEDERAL

Abstract: Introduction: Multiple sclerosis (MS) is a demyelinating, inflammatory, chronic, primary disease of the central nervous system (CNS) which mainly affects young female adults. Visual changes are frequent causes of disability in MS. They may be present even in patients without visual complaints and / or previous history of optic neuritis. Method: Sixty eyes were examined, 30 of which were diagnosed in MS and 30 in control patients, attended at the Base Hospital of the Federal District. The patients were evaluated for the parameters: characteristics and alterations of the ophthalmological exam, OCT of the nerve and macula and Campimetry. Results: Patients with MS presented worse results in all parameters evaluated. In the visual field examination Localized losses were found in 50%. In relation to OCT of optic nerve, a reduction of the nerve fiber layer was observed in temporal quadrants (p = 0.0251) and lower (p = 0.0041), the macular OCT revealed a decrease in CFN mainly in the internal nasal quadrants (p = 0.0002) and external (p = 0.0016), internal inferior (p = 0.0007) and external superior (p = 0,0108) and internal (p = 0.0046). Patients with lower values of macular thickness also had worse results in the visual field (p = 0.0001). Conclusion: This study demonstrated that MS is a disease capable of causing changes in OCT and visual field tests even in the absence of visual symptoms reported by patients. Examinations such as visual field and OCT of macula and nerve can be a useful tool to estimate the commitment by the disease and to assist in the follow-up of these patients

Contact: MILENA MAGALHAES LIMA - mili_li_ma@hotmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57495

Title: CHIKUNGUNYA FEVER IN PATIENTS ON NATALIZUMAB FOR MS: AN EMERGENT CHALLENGE

Authors: Amelba Cynthia Mesquita Mota; Lucas Silvestre Mendes; Gabriela Joca Martins; Jose Artur Costa D'almeida; Verônica Tavares Aragão; Fernanda Martins Maia;
Institution: HOSPITAL GERAL DE FORTALEZA

Abstract: Introduction: Since 2015, Chikungunya fever (CHIKVF) has become a major concern on the Northest of Brazil. In 2017, this number outraised previous expectations, becoming a major concern especially, in older patients and in imunocompromised individuals. Due to it's enormous inflammatory burst response, CHIKVF is being considered a major trigger in immune related disorders. It's behavior on patients using natalizumab is still unknown. Materials and methods: We describe a case series of 3 remittent recurrent MS (RRMS) patients, regularly on Natalizumab, who presented with CHIKVF on the course of treatment, confirmed by IgM antibody. Results: the first case was on a 24 years old female, 7 years history of MS, on Natalizumab since 2014, who presented fever, nausea and arthralgia 10 days after the 43rd infusion. Fever lasted for 4 days and she became asymptomatic after day 20. The second case was on a 32 years old female, RRMS diagnosed since 2002, on Natalizumab since 2010. She presented fever, muscle pain and arthralgia 26 days after natalizumab infusion. After the 4th day, fever recurred and the 84th infusion was postponed to the next week. The third case is a 31 years old female, RRMS diagnosed in 2016, presenting fever after her first Natalizumabe infusion, associated with artrahlgia, nauseas, rash and visual blurring. She progressively recovered and the second infusion took place 28 days latter. Discussion and conclusion: CHIKV fever's physiopathology is not fully understood, since the virus itself can be involved in this matter. On the other hand, increasing evidence shows that host immune response plays a major role on neurological symptoms generation. Based on this assumption, much is needed to know about the natural history of RRMS patients, especially those on monoclonal antibody use, including possible complications and chronic persistence of viral infection.

Contact: VERÔNICA TAVARES ARAGÃO - veronicatavares.med@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57949

Title: CORRELATION BETWEEN TIME OF MOVEMENT AND DIFFICULTY LEVEL IN MULTIPLE SCLEROSIS

Authors: Ana Maria Canzonieri; Talita Dias da Silva; Camila Miliani Capelini; Thais Massetti; Carlos Bandeira de Mello Monteiro; Giulianna Mendes Ferrero; Juliana Aparecida Rhein Telles; Rosimeire de Brito; Lucas Felipe Ribeiro dos Santos; Thais Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: Multiple sclerosis (MS) is a demyelinating disease of the central nervous system, which triggers motor, cognitive and functional changes in daily life. Objectives: To evaluate the movement time according to the level of difficulty in people with MS, in a virtual task. Methods: The virtual task was to perform movements in a virtual interface based on Fitts' law, which presents an inverse relationship of increase in speed and decrease in motion accuracy. We used 4 progressive difficulty indexes (IDs): ID1, ID2, ID3 and ID4, each ID was performed three times while the total time of movement (time / touch) was captured. The movement time was obtained by dividing between pre-set seconds for the task (10) and the number of touches performed on the target. The software that simulated the task was Fitts Reciprocal Aiming Task v.1.0 (Horizontal). The results present the means of the 3 trials in each ID. We evaluated 17 women and 5 men, with MS, in Civil Social Institution, in São Paulo. Results: Sample between 23 and 60 years old ($\bar{x}$ = 47.05 ± 10.97), 16 patients with recurrent type of remitting, 5 with secondary progressive, and 1 with primary progressive type. In relation to the Fitts task, the mean movement time in ID1 was 94ms, ID2 was 159ms, ID3 was 144ms and ID4 was 211ms. And with respect to the number of rings, the average number of rings was 97.86 ± 32.34 and the total number of rings was 100.81 ± 33.11 (mean ± standard deviation), establishing a 97% Conclusion: Considering the results of the different difficulties presented, people with MS increased their movement time as there was an increase in task difficulty, as proposed by the Fitts Law. Greater accuracy of movement.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57912

Title: DIETARY BEHAVIOR, BODY IMAGE AND SEDENTARISM AMONG PATIENTS WITH MS

Authors: Marcos Barbosa de Almeida; Yara Dadalti Fragoso;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: Healthy dietary habits and physical activity are recommended for all individuals, irrespectively of age or disease. Apart from disease prevention, these healthy habits may also be associated with psychological characteristics like pleasurable relationships, good body image, self-esteem, self-confidence and personal satisfaction. On the other hand, sedentarism and unhealthy dietary habits are associated with chronic pain, illnesses, diabetes, dyslipidemia, cardiovascular disease and obesity. Among patients with multiple sclerosis (MS), attitudes towards diet and exercising may make a remarkable difference to quality of life and, therefore, to the mid to long-term prognosis. The objective of the present study was to assess aspects of diet and exercising among patients with MS. Methods: Patients with MS (n=40) and control subjects (n=40) were individually assessed using the Eating Attitude Test (EAT-26), Body Shape Questionnaire (BSQ) and Baecke Physical Activity Questionnaire. All scores obtained through these tools were progressive, meaning that higher values reflected better results. Results: Patients with MS were less concerned about their dietary habits (median score = 9 versus 16 for control subjects), had worse perception of their body image (median patients' score = 44 versus score = 68 for control subjects) and had lower levels of physical activity (total patients' score = 5.85 versus total control subjects' score = 9.5). Conclusion: A multidisciplinary approach towards patients with MS is essential when considering the long-term success of disease management. Improvement of the patients' dietary habits and physical activity programs may prove important in treating these individuals.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57476

Title: EDSS AND FUNCTIONAL TEST ARE ASSOCIATED TO KNEE MUSCLE STRENGTH IN WOMEN WITH MULTIPLE SCLEROSIS.

Authors: Cintia Ramari Ferreira; Andrea Gomes Moraes; Carlos Bernardo Tauil; Ana Cristina de David;
Institution: UNIVERSIDADE DE BRASÍLIA

Abstract: Introduction: A common symptom of multiple sclerosis (MS) is reduced functional capacity, which manifests itself as impaired ability to perform activities of daily living (ADL), such as staircase climbing and getting out of a chair. It is important to understand the muscle function in people with MS, in order to identify weakness and develop future interventions to improve strength. The purpose of this study was to ascertain the relationship between expanded disability status scale (EDSS) values and knee muscle strength. In addition, to investigate the relationship between muscle strength and time up and go (TUG) functional test in people with MS. Material and Methods: 25 women with relapsing-remitting MS, EDSS (1-5), age=35.92(±10.1) years, weight=61.07(±13) kilograms and height=160.2(±5.3) centimeters. The study was approved by the ethics committee,CAAE:67098217.5.0000.55 53. The peak torque was measured by isokinetic dynamome- try in four trials for each angular velocity (60º/s, 90º/s and 180º/s), for both legs. The mean time of three trials of the TUG was calculated. The Pearson and Spearman was used for correlation between TUG, EDSS and muscle strength, respectively. Results: Both EDSS and TUG correlated with knee muscle strength ($p<0.05$). The peak torque of knee extensors (KE) and knee flexors (KF) had strong correlation (r) with the TUG for all angular velocities: 60º/s (KE=-0.66/KF=-0.75), 90º/s (KE=-0.73/KF=-0.59) and 180º/s (KE=-0.77/KF=-0.70). Discussion and Conclusions: The results showed that knee muscles weakness affect the level of disability in MS. The correlation between peak torque and TUG demonstrate the feasibility of this functional test to access the capacity of the lower limbs in MS patients. At least, the strong correlation at the angular velocity of 180º/s show the importance of rapid production of force for the ADL, such as getting out of a chair.

Contact: CINTIA RAMARI FERREIRA - cintiaramari@yahoo.com.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57443

Title: EFFECT OF MULTIPLE SCLEROSIS IN THE STOMATOGNATHIC SYSTEM

Authors: Gabriel Pádua da Silva; Camila Roza Gonçalves; Bruno Ferreira; Marcelo Palinkas; Edson Donizetti Verri; Oswaldo Luiz Stamato Taube; Selma Siéssere; Simone Cecilio Hallak Regalo;
Institution: FACULDADE DE MEDICINA DE RIBEIRÃO PRETO (FMRP/USP)

Abstract: Introduction: Multiple sclerosis is a disease that can develop into symptoms associated with speech, swallowing, language, motor and orofacial sensitivity related to the masticatory muscles, as well as cognitive impairment. The musculoskeletal system may present homogenous impairment as muscular atrophy, a fact justified by progressive motor inactivity according to the time and evolution of the disease. Objective: To analyze the impact of multiple sclerosis in the function of the stomatognathic system. Methods: Thirty-four individuals were selected from both genres and divided into two groups: those with multiple sclerosis (MSG, n = 17, average age 47.82 ± 15.54) and healthy individuals (CG; average age 48.00 ± 15,38). The individuals were submitted to electromyographic evaluation, efficacy and thickness of the temporal, masseters and sternocleidomastoids muscles, as well as bite force, by means of surface electromyography, ultrasonographic images, and gnatodynamometry respectively. Data were analyzed by means of the Student t-test (P≤0.05). Results: There were significant statistical differences in electromyographic activity between MSG and CG in mandibular rest, protrusion, right laterality, left lateralality and habitual chewing and not habitual to the sternocleidomastoid muscles, with increased electromyographic activity compared to the control group. There was no statistically significant difference (P≥0.05) between MSG and CG for electromyographic activity under static and dynamic mandibular conditions for the masseter and temporal muscles, maximal molar bite strength and masticatory and cervical muscle thickness. Conclusion: Based on the results of this research, individuals with multiple sclerosis showed hyperactivity in sternocleidomastoid muscle.

Contact: GABRIEL PÁDUA DA SILVA - gabrielpadua@usp.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57504

Title: EFFECTIVENESS OF CELL THERAPIES AND CONVENTIONAL DISEASE-MODIFYING TREATMENTS IN THE PREVENTION OF MULTIPLE SCLEROSIS RELAPSES

Authors: Paulo Eduardo Lahoz Fernandez;
Institution: UNIVERSITY OF SANTO AMARO

Abstract: Introduction Multiple sclerosis (MS) is an autoimmune disease that results in demyelination and loss of central nervous system (CNS) neurons, with 80% of the patients developing progressive disability. Treatments to reduce relapses have limited progress in prevention. The conventional disease-modifying treatments (CDMT) as interferons, glatiramer acetate, cytotoxic drugs (mitoxantrone and cyclophosphamide) and others do not provide satisfactory control of MS and the second-line therapy have only partial benefitial effects. The cell therapy is an attractive option with immunomodulatory, neuroprotective and reparative processes. It includes: Autologous Hematopoietic stem cell transplantation (AHSCT) that promotes intense immunosuppression, high-dose immunosupressive therapy (HDIT) and Mesenchymal/stromal stem cells (MSC) that can also supress T, B and NK cells proliferation with anti-proliferative and immunomodulatory properties combined. Objective To compare the effectiveness of the cell therapies (AHSCT, HDIT and MSC) with CDMT in the prevention of relapses in MS. Materials and Methods A Systematic Review and meta-analysis performed in the Medline source. We included clinical trial studies in english from 2010-2017 that analyzed the effectiveness of the treatment with AHSCT, HDIT and MSC and CDMT in the prevention of relapses in MS. Qualitative studies or inappropriated to the main subject or language were excluded. We used the keywords: multiple sclerosis, treatment and stem cells. Results We found a better outcome in the cell therapies when comparing to the conventional treatment of SM. Discussion and conclusions These findings points to the importance of research of new therapies such and AHSCT, HDIT and MSC that can optimize the clinical management of MS, preventing relapses and promoting a better quality of life for these patients.

Contact: PAULO EDUARDO LAHOZ FERNANDEZ - laupolf@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57479

Title: ENGINE PERFORMANCE IN LABYRINTH VIRTUAL TASK IN PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Ana Maria Canzonieri; Camila Miliani Capelini; Talita Dias da Silva; Thais Massetti; Carlos Bandeira de Mello Monteiro; Rosimeire de Brito; Giulianna Mendes Ferrero; Juliana Aparecida Rhein Telles; Lucas Felipe Riberio dos Santos; Thais Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: The Multiple Sclerosis (MS) inflammatory disease, chronic and demilelinizing central nervous system, affects young adults and especially women, and can trigger motor and cognitive changes and functional limitations in daily life. Objectives: To evaluate the motor performance of MS patients in the use of computer games. Methods: A maze game was used on the computer. Participants performed 20 replicates of the game in the acquisition phase and 5 replications in the retention and transfer phases. A comparison was made between performance at the beginning of the acquisition phase (blocks A1) and at the end (block A4), and the latter compared to R - retention and transfer - T. Five patients with MS were evaluated: 4 women and 1 Man, in Civil Social Institution, in São Paulo. Results: Sample between 23 and 60 years old, 4 people with higher education, sickness time between 10 and 24 years, being 2 people with recurrent type of remitting and 3 with secondary progressive, 3 people with EDSS 3, 1 with EDSS 6.5 and 1 with EDSS 6. The fatigue assessment scale with values ranging from 19 to 39, indicating varied states of fatigue. In the evaluation of the psychological test Pfister Colored Pyramid 2 people receive the external stimulus broadly and somehow manage to deal with it, 2 people receive the stimulus in a restricted way and do not know how to deal with it and 1 person receives moderately and knows Deal with it. Participants with MS improved performance at acquisition (evidenced by the decrease in labyrinth run time (from A1 = 14.16 seconds to A4 = 10.76 sec). On retention performance remained (R = 9.4 sec), and In the transference also (T = 11.72 sec), indicating learning of the motor task Conclusion: In this pilot study it was observed that there is no interference of emotional and cognitive alterations, neither of EDSS, age and time of illness in the motor performance of the game Labyrinth in the computer, all of which showed improved performance after practice.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57868

Title: EVALUATION OF ANXIETY AND DEPRESSION IN PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Ana Maria Canzonieri; Lucas Felipe Ribeiro dos Santos; Thais Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: Multiple sclerosis (MS) is a chronic disease, affects more young adults and women. Faced with this problem and the disease, it is justified an evaluation of the cases of depression and anxiety, considering that women present more of them as well as those that are independent of the disease, besides the own MS to bring uncertainty about the prognosis that could trigger such symptoms. Objectives: To demonstrate the presence of anxiety and depression in MS patients. Methods: Evaluation of 58 patients of both sexes with MS, in Civil Social Institution, in São Paulo, with the inventory of Beck, for anxiety (BAI) and depression (BDI). Results: A total of 38 women and 20 men between the ages of 23 and 60 were evaluated, of whom 43 had higher education, diagnosed between10 to 24 years, 46 of whom had a recurrent type, with EDSS between 0 and 4.5, are 40 people and from 5 to 7.5 are 18, married are 27 people. In BAI there are 48 people with mild and minimal degrees, who represent 82.75% and in the BDI are 50 people (86.20%), indicating the presence of anxiety and depression, and moderate and severe cases for anxiety and depression are present in 8.6% of male Conclusion: There is presence of anxiety and depression in most people of mild and minimal degree and a significant number for moderate and severe cases in men.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57924

Title: EVALUATION OF QUALITY OF LIFE IN DEMYELINATING DISEASES IN CHILDHOOD: CONSIDERATIONS ABOUT THE PERSPECTIVE OF PATIENTS AND THEIR PARENTS

Authors: Ana Paula Rodrigues Lazzari Amâncio; Lúcio José de Santa Ignêz; Gabriel Gamarano; Alessandra Augusta Barros Penna e Costa; Tânia Regina Saad Salles;
Institution: INSTITUTO FERNANDES FIGUEIRA

Abstract: Measures of quality of life (QL) have been considered an important outcome in the studies of patient s with acquired demyelinating diseases (ADD). The goal of the study was to evaluate the perception of QL in children/ adolescents with ADD from their own point of view and from their caregivers and possible associated factors. This was a cross-sectional study in which clinical and sociodemographic data, assessment of the severity of the disease using the Expanded Disability Status Scale (EDSS) and QL were collected by the Pediatric Quality of Life Inventory version 4.0 (PedsQL) of 21 patients and caregivers belonging to a pediatric cohort of a tertiary hospital. The mean of the total QL score was lower in the caregiver‘s perception, significant only in the physical score. The correlation of the psychosocial score and the total PedsQL score for both were respectively ρ= 0.49 and p-value = 0.03; ρ= 0.47 and p-value = 0.04. There were no significant correlations between EDSS score and and the PedsQL scores of the patients. It was concluded that the children/ adolescents have a better perception than their caregivers regarding QL and, by the backward stepwise regression, the predictors that contributed to the patient‘s total QL score were the physical scores of the parents and being of the female sex and for the parents, the children‘s psychosocial score.

Contact: ANA PAULA RODRIGUES LAZZARI AMANCIO - ANAPAULARLA@HOTMAIL.COM

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57505

Title: EXECUTIVE FUNCTIONS AND PROCESSING SPEED IN INDIVIDUALS DIAGNOSED WITH MULTIPLE SCLEROSIS ON DIFFERENT LEVELS OF DISABILITY MEASURED BY EDSS

Authors: Morgana Scheffer; Lucas Immich Gonçalves; Jefferson Becker; Rosa Maria Martins de Almeida;
Institution: PONTIFICAL CATHOLIC UNIVERSITY OF RIO GRANDE DO SUL

Abstract: Introduction Multiple sclerosis (MS) is a demyelinating disease that causes lesions in the white and gray matter of the brain and can cause cognitive impairment in more then 65% of cases. EDSS may be related to cognitive impairment. Objective of this study was to evaluate the executive functions (FEs) in individuals diagnosed with MS with a minimum and moderate level of disability. Material and Methods Instruments: Behavioral Assessment of the Dysexecutive Syndrome; Wisconsin Card Sorting Test; Stroop Test; Symbol Digit Modalities Tests were applied in subjects with EDSS <3 (n= 23); EDSS between 4 and 6 (n= 11); and healthy controls (n= 33) matched by age and years of studies. Results Statistically significant differences were observed in the processing speed between the groups of subjects with EDSS <3 and control and EDSS between 4 and 6 and control (U = 233.000, z = -2.442, p = 0.015) and (U = 81.500, z = -2.715, p = 0.005), respectivaly and in the time spent performing the Stroop Test cards 1 and 3 and subtraction of these times between the groups of subjects with EDSS <3 and control (U = 190,000, z = -3,175 , P = 0.001), (U = 204,500, z = -2,920, p = 0.004) and (U = 245,500, z = -2.236, p = 0.026), respectively. In the comparison between the groups with EDSS between 4 and 6 and control, there was a statistically significant difference in the time spent performing the Stroop Test cards 1 and 3 (U = 26,500, z = -4,233, p = 0,000) and (U = 66,000, z = -3.135, p = 0.001), respectively. In the time spent in planning evaluation task, there was a statistically significant difference between the clinical groups and control (U = 214,000, z = -2,757, p = 0.006) and (U = 96,500 , Z = -2.304, p = 0.020), respectively. Discussion and Conclusions Preliminary data indicated that the processing speed appears to be reduced at different levels of neurological disability in MS. Future studies on the effect of processing speed of information on FEs in this population are necessary.

Contact: LUCAS IMMICH GONÇALVES - lucas.goncalvess@hotmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57961

Title: FATIGUE EVALUATION IN MS PATIENTS

Authors: Fernanda de Moraes Dantas;
Institution: HCFMUSP

Abstract: Introduction: Fatigue is one of the most distressful symptoms in patients with Multiple Sclerosis (MS) and is recurrent in this population, with 75%-90% of patients reporting it during the disease. Depression as Anxiety are frequent in MS and elevates compared with the general population and could be natural reactions to the unpredictable course of the disabling and chronic disease. The aim of this study is to verify the correlation and characteristics of a group from a center of reference in MS in Brazil. Methods: Forty-five patients with definite MS were recruited from a Multiple Sclerosis Center (HCFMUSP). The Fatigue Severity Scale (FSS-BR), Modified Impact Fatigue Scale (MFIS-BR), Hospital Anxiety and Depression Scale (HADS) and the Expanded Disability Status Scale (EDSS) score were performed in all patients. Participants were classified into groups with no fatigue (F-) versus present fatigue (F+), considering the score obtained in the FSS-BR. The relationship between fatigue, demographic data, anxiety, depression and disability were analyzed. Results: 45 patients were included, 43 presenting fatigue. There was no difference in age, sex, MS duration, clinical presentation and incapacity between groups. There was positive correlation between fatigue and anxiety (p= 0,03564) and between fatigue and depression (p= 0,04136). Conclusions: Depression and anxiety are associated with fatigue in real life. However, other conditions commonly associated with MS are also associated with persistent fatigue. These findings indirectly suggest that psychological interventions for reducing depression and anxiety can lead to improved fatigue of MS patient.

Contact: FERNANDA DE MORAES DANTAS - femdantas@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57826

Title: GENERAL CHARACTERISTICS AND NUTRITIONAL STATUS OF PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Renata Furlan Viebig; Lara Sodré Lázaro Alckmin; Thaís Sousa; Larissa Moreira Dias; Guilherme Oliveira Piedade Bustos; Lucas Felipe Ribeiro dos Santos; Ana Maria Canzonieri;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: Multiple sclerosis (MS) can negatively impact the nutritional status of patients, worsening the modulation of inflammatory responses and symptoms caused by the disease. Objectives: To evaluate the nutritional status of MS patients treated at a support institution. Methods: A cross-sectional study on the data collection of MS patients, male and female, attending a Civil Social Institution in São Paulo. In individual interviews, socioeconomic and lifestyle information was collected, nutritional status was evaluated using the Body Mass Index (BMI), and the results were classified according to WHO (1995) for adults and PAHO (2002) for the elderly. Data were analyzed by measures of central tendency and percentage distribution. The research ethical approval protocol is CAAE-50839915.9.0000.0084. Results: Twenty-two patients, mean age 50 years (SD = 14.31), 27.3% men, were evaluated. Most of the patients were white (68.2%) and had completed High School (86.4%). The mean time to diagnosis of MS was 16 years. Three patients were smokers, eleven reported to consume alcoholic beverages and 63.6% did physical activity, especially pilates. About 18% of the patients were hypertensive, another 18% had changes in the thyroid and 13.6% had neurogenic bladder. The mean BMI of women was 26 kg / m2 and of men was 24.4 kg / m². No adult had low weight and only 1 elderly was considered undernourished. Among the adults, 13.3% were overweight and 20% were obese. Half of the elderly patients (60 years of age or older) were overweight. Conclusion: It was concluded that approximately one-third of the patients were overweight, perhaps due to the reduction of physical mobility consequent to MS, indicating the need for nutritional monitoring to avoid worsening symptoms.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57825

Title: HIGH LEVELS OF ALEXITHYMIA MAY CONTRIBUTE TO THE COMPLEX AFFECTIVE TRAITS FOUND IN PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Yara Dadalti Fragoso; Audred Cristina Biondo Eboni; Mariana Cardoso; Felipe Moreira Dias; Paulo Diniz da Gama; Sidney Gomes; Marcus Vinicius Magno Goncalves; Suzana Costa Nunes Machado; Adaucto Wanderley da Nobrega Jr; Monica Fiuza K. Parolin; Sonia Castedo Paz; Heloisa Helena Ruocco; Claudio Scorcine; Fabio Siquineli; Caroline Vieira Spessotto; Carlos Bernardo Tauil;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: Alexithymia is a personality trait characterized by difficulties in identifying and describing feelings, with an externally oriented thinking style. While studies on traumatic brain injury, stroke and epilepsy show that these neurological patients have high rates of alexithymia, there are remarkably few reports on alexithymia in patients with MS. Patients with MS have been regularly assessed and treated for anxiety and depression in specialized MS units, but it important to keep in mind that other traits may affect these individuals. The objective of the present study was to further characterize findings of alexithymia in MS. Materials and methods: This cross-sectional case-control study included 180 patients with MS and a gender, age and schooling-matched control group of 180 individuals. They were all assessed using tools validated for traits of depression, anxiety and alexithymia. Demographic and clinical data were obtained during individual interviews. Results: There were 126 women and 54 men in each group, with median age of 37 years and median schooling of 16 years. The median disease duration was eight years and the median disability degree, assessed by EDSS, was 2.0. Patients with MS presented higher degrees of depression ($p<0.01$), anxiety ($p=0.01$) and alexithymia ($p<0.01$) than did control subjects. For individuals with MS, depressive traits ($p<0.01$), anxious traits ($p=0.03$), higher age ($p=0.02$), lower education level ($p=0.02$), higher degree of disability ($p<0.01$) and not being part of the working force ($p=0.03$) had a significant influence on higher rates of alexithymia. It was remarkable to observe that these were, in general, individuals with low degrees of disability that might be fully functional given the opportunity to thrive. Conclusion: Alexithymia was an important finding in patients with MS and should be addressed when psychological testing and care are considered for these individuals.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57914

Title: LOWER LEVELS OF EMPATHY AMONG PATIENTS WITH MULTIPLE SCLEROSIS MAY REFLECT ATTENTION DEFICITS

Authors: Marcos Barbosa de Almeida; Yara Dadalti Fragoso;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: Patients with multiple sclerosis (MS) have been reported to show lower degrees of empathy towards other individuals and situations. This finding seems to be independent of anxiety and depression traits and it is not necessarily related to neurological disability or disease duration. The objective of the present study was to investigate whether these lower levels of empathy might be correlated with lower degrees of attention, since the latter could generate difficulties in interpreting the environmental surroundings of the patient. Methods: Patients with MS (n=40) were assessed using the Trail Making Test (TMT) and the Empathy Coefficient (EQ). TMT is a good tool for assessing the degrees of attention, visual search and scanning, sequencing and shifting, psychomotor speed, abstraction, flexibility, ability to execute and modify a plan of action, and ability to maintain two trains of thought simultaneously. Results: Patients with low degrees of empathy had low scores in the TMT evaluation. Only six patients who presented average levels of empathy also showed average skills in the attention test. There were no cases of average (or above average) attention scores among patients with low degrees of empathy. Conclusion: It is possible that the low levels of empathy observed among patients with MS are in fact a reflection of their difficulties in other skills, such as maintaining sustained attention, exercising flexibility in interpreting the environment, and working with strategies.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57824

Title: MULTIPLE SCLEROSIS AND GESTATION: LONGITUDINAL CUT OF CARE

Authors: Ana Maria Canzonieri; Mauricio Ossamu Bando;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Female, 29 years old, married, incomplete graduation, commercial representative, with multiple sclerosis (MS), type EMRR, EDSS 1.0, first outbreak and diagnosis in 2007. It makes use of interferon. Main symptoms are fatigue and strength deficit in MSD. She did psychological evaluation because of emotional instability, anxiety, insecurity and low self-esteem. She got pregnant shortly after the beginning of the psychological treatment. Objectives: To attend to pregnant psychotherapy with MS Method: The treatment was performed in two programs of 15 sessions, a weekly of approximately 45 minutes, by a psychologist specialized in the care of patients with MS. The psychological test of the Colored Pyramids of Pfister was applied in 4 stages (3, 6 and 9 months of gestation, and 4 months postpartum). Result: There was a significant evolution in the psychological structure, such as strengthening of the psychic structure, reduction of anxiety and irritability, increased mechanisms of self-control, decreased fear of motherhood, increased self-esteem and awareness of femininity. It was observed that the patient had no postpartum outbreak and because of her clinical condition and the result of MRI, she did not need to return immediately to the medication and could breastfeed the child for 4 months. Discussion: Gestation in people with MS, despite knowledge of research that indicates a protective factor to the mother, generates fear and anxiety, mainly related to the possibility of occurrence of a postpartum outbreak and also to the future difficulties of the disease evolution. Conclusion: It was observed that the psychological treatment performed by a team specialized in the disease was beneficial for this pregnant woman with MS.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57869

Title: MULTIPLE SCLEROSIS INTERNUCLEAR OPHTHALMEPLEGIA

Authors: Ana Maria Canzonieri; Marcia Cristina Baptista Dias; Roger Pereira Silva; Lucas Felipe Ribeiro dos Santos; Thais Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: The multiple sclerosis (MS) inflammatory and demyelinating disease of the central nervous system, which in many cases can affect the optic nerve causing various visual changes. Objective: To demonstrate the importance of visual therapy in patients with internuclear ophthalmoplegia. Methods: Case of a male 40 -year-old with secondarily progressive MS, with EDSS 6.5, diagnosed 19 years with internuclear ophthalmoplegia, performs neuro-rehabilitation in a Civil Social Institution in São Paulo. In the visual therapy service, he was evaluated by visual acuity tests, stereotypes (depth vision), motor and color of Ishihara, after which 8 sessions were performed, weekly, of 45 minutes, in which the stimulation of the extrinsic muscles was developed and for visual acuity. Results: The patient presented visual acuity reduction, had no depth vision, did not see clearly the green, red and yellow colors, and paralysis of the extrinsic muscles was observed. By the exercises of stimulation of the medial rectus muscles (which activates the 3rd pair of nerves) and lateral rectus (which activates the 6th pair of nerves) during the 8 sessions, an improvement in ocular (momentary) movement and acuity visual. Conclusion: After the sessions of visual therapy, the improvement of the extrinsic muscles was obtained, allowing the patient to better ocular movement, visual acuity and stereopsia.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57985

Title: MULTIPLE SCLEROSIS RELAPSING-REMITTING AND TREATMENT CHALLENGES

Authors: Paulo Diego Santos Silva; Moises Antonio de Oliveira; Keila Narimatsu; Charles Peter Tilbery;
Institution: SANTA CASA DE SÃO PAULO

Abstract: Introduction: Multiple sclerosis (MS) is a chronic and disabling disorder, making adherence to treatment of utmost importance to maximize long-term benefits. However, poor treatment adherence, especially in the relapsing-remitting type (RR), is common, and poor adherence or treatment gaps are associated with higher rates of relapse. There are studies in literature evaluating neurologists' perception regarding treatment adherence, however literature is scarce when evaluating the self-perception of the patient himself. Objectives: To analyze MS patients (self-assessment) perception regarding their adherence to the disease modifying therapy and to assess the main difficulties and barriers. Methodology: We randomly selected 40 patients with RMSE from CATEM to answer a questionnaire regarding their degree of treatment adherence on a scale from 0-100. There were 20 patients in injective rout treatment and 20 patients on oral medications. We questioned: forgetfulness regarding medication intake, injection or pill anxiety, lack of effectiveness perception, adverse treatment/ medication events and the resolution of an adverse event. Results: The mean age was 38 years, with a female prevalence and EDSS ranged from 0-5.5. The mean self-assessment of patients on injectable medication was 94.54% while on oral medications 88.33%. The main difficulty reported was the presence of adverse events, followed by injection anxiety, in parenteral treatment, while in the oral treatment, forgetfulness. The chronic nature of MS makes the treatment adherence challenging. Although neurologists are aware of the consequences of noncompliance, they often spend little time discussing this matter with their patients. Continued education and consistent strengthening of the importance and value of adequate treatment are essential strategies in the treatment maintenance. Conclusion: Patients self-perception regarding treatment adhesion was found positive, being better in patients in use of parenteral medications. Adverse medication events and forgetfulness are the two main limitations in injectable therapy, and oral therapy, consequently.

Contact: MOISES ANTONIO DE OLIVEIRA - drmoisesneuro@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57472

Title: NEUROPSYCHOLOGICAL EVALUATION: PATIENT CASE STUDY WITH MULTIPLE SCLEROSIS AND ALTERATION OF BEHAVIOR

Authors: Ana Maria Canzonieri; Maurício Ossamu Bando; Thais Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: Multiple sclerosis (MS) is a demyelinating disease of the central nervous system that causes cognitive changes. Objectives: To demonstrate the importance of neuropsychological assessment in people with MS. METHODS: Neuropsychological evaluation of a woman, 41 years old, single, higher education, retired, MS type secondary to progressive, EDSS 6.5, first outbreak and diagnosis in 2000. Main symptoms: fatigue, urinary incontinence, spasticity, MMSS ataxia, MMII, memory, attention and behavior changes. The neuropsychological evaluation was performed in 6 sessions of 45 minutes, in 2017, in Civil Social Institution, in São Paulo. The following instruments were applied: MMSE - Mini mental examination; WAIS III (Similarities, Digits and Matrix Reasoning); MVR - Visual Face Memory Test; FDT - Five Digits Test; NEUPSILIN - Short neuropsychological assessment instrument; And TAT - Thematic Apperception Test. Result: There was altered mental status, low intellectual level, visual perception deficit, memory, attention and executive functions, impairment of comprehension language and temporal disorientation. Personality assessment demonstrates immature thinking, juvenile amorous ideation, lack of criticism, inadequacy, difficulty in environmental perception, and disorganization of discourse. MRI of the skull shows multiple white matter lesions, dilation of the ventricles, and accentuation of the cortical sulci with changes in the brain structure. Discussion: An important, generalized, unusual cognitive impairment is observed in patients with MS in this age group. The observed behavioral changes may be related to this marked cognitive deficit, depending on the areas affected by MS lesions. Conclusion: Neuropsychological assessment is provided with resources for the analysis of cognitive functions and behavioral changes in people with MS.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57964

Title: NEUROPSYCHOLOGICAL PROFILE IN MULTIPLE SCLEROSIS

Authors: Manuela Bezerra de Carvalho; Henrique Cal; Henrique Jannuzzelli Pires do Prado; Tayla Taynan Romão; Osvaldo J. M. Nascimento; André Palma da Cunha Matta;
Institution: UFF

Abstract: Introduction: Knowledge about cognitive implications of Multiple Sclerosis (MS) is an important tool in the monitoring and management of these patients. However, a few batteries applied in this population include aspects of language. From the neuropsychological assessment it is possible to define the level and characteristics of these changes, in order to complement the understanding about this population, as well as to provide subsidies for future interventions of cognitive stimulation. Methods: We analyzed 30 patients from the outpatient clinic referred to MS, who underwent neuropsychological evaluation. The battery in question included many abilities, having this work focused on evidence of Verbal IQ and language. Results: Female patients were prevalent (78%) in the sample, with a mean age of 47 years, average schooling of 8 years, mean disease duration of 7.5 years and maximum EDSS 7 (average 3,5). Verbal auditory memory tests and mood were altered massively, followed by processing speed, verbal fluency and executive functions. Verbal IQ alterations: 58% attention, 54% abstract reasoning and 47% arithmetic. Discussion and Conclusions: Memory is frequently affected, and this seems to be the most frequent complaint, though the results indicate impairment of several other functions. The majority of patients presented cognitive alterations already in the phase testing. There was a correlation indirect between the variables age and schooling with greater cognitive impact. The value off EDSS is not correlated with the presence of Verbal IQ changes. Processing speed and verbal fluency appear to be very sensitive tests in MS and can be used as screening. Although there was no frequent complaint, the skills that make up the Verbal IQ presented significant changes. Neuropsychological assessment of routine and adequacy of instruments is necessary, considering age, schooling and pathology presented, since patients are not always able to clearly characterize the difficulties.

Contact: HENRIQUE DE SA RODRIGUES CAL - henriquecal@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57470

Title: PILATES' IMPACT ON QUALITY OF LIFE AND FATIGUE IN PATIENTS WITH MULTIPLE SCLEROSIS - CASE REPORT

Authors: Ana Maria Canzonieri; Giulianna Mendes Ferrero; Juliana Aparecida Rhein Telles; Bruna Helena Sciarinni; Bruna Leite Gaudereto; Lucas Felipe Ribeiro dos Santos; Thais Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: The Multiple Sclerosis (MS) is a demyelinating autoimmune disease with a degenerative component of axonal injury of the central nervous system. The main symptoms are motor deficits, cognitive impairment and fatigue, which directly affect the quality of life. The Pilates Method is based on physical exercises following the principles of breathing, central force contraction, concentration, control, precision and fluidity, improving muscle strength, flexibility, balance, trunk control, among others. It is assumed that it may contribute to the physical improvement of MS patients. Objective: To verify the impact of Pilates training in patients with MS. Methods: The assessment was performed before and after the intervention and repeated after 5 months, using the Multiple Sclerosis Quality of Life - 54 (MQOSL-54) and Modified Fatigue Impact Scale (MFIS) scales. Eight sessions of 45 minutes, weekly for 3 months with Barrel, Cadillac, Reformer and Chair equipment, training with stretching and muscle strength work, trunk control training and static and dynamic balance were performed in a female patient, 43 years , EDSS 4.0, diagnosis time of 9 years, type of MS secondary to progressive, with physiotherapeutic diagnosis of gait ataxia. Results: After the intervention period, there was improvement in the quality of life and fatigue, from 28.78 to 52.91 points in the MSQOL in the area of physical health and from 41.81 to 66.6 in the field of mental health. Fatigue also showed a reduction of 34 points to 12. After 5 months of intervention, the patient increased to 53.21 the MSQOL physical health domain score when compared to previous evaluations. In the field of mental health there was a decline in the last evaluation. The same occurred on the fatigue scale. Conclusion: Rehabilitation with the Pilates method in patients with MS improves quality of life and fatigue, results are continuous even after a period without treatment.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57467

Title: PILOT PROJECT: NEUROVISION

Authors: Ana Maria Canzonieri; Roger Pereira Silva; Lucas Felipe Ribeiro dos Santos; Thais Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: Multiple sclerosis (MS) inflammatory and demilelinizing disease of the central nervous system, which in many cases can affect the optic nerve causing various visual changes. Objectives: To demonstrate visual changes in patients with MS. Methods: Pilot project of neurovisual evaluation in 6 patients with MS, 5 women and 1 man, in Civil Social Institution, in São Paulo. Sample between 23 and 60 years, 4 people with higher education, sickness time between 10 and 24 years, 3 people with recurrent type of remitting and 3 with secondary progressive, 3 people with EDSS 3, with EDSS 6.5 are 2 people and 1 with EDSS 6. Results: The 6 patients had altered muscle movement, but 1 person who had altered muscle movement and did not have any other alteration, it is assumed this occurrence as a function of age (23 years), with 5 patients over 35; 4 patients with normal vision and 1 patient need correction with lenses; 4 people with intermittent diversion and 1 tropic alteration; 5 people with slow pupillary reaction; 4 people with insufficient depth of vision; 1 with alteration of color yellow and red and 1 with change of color green and red, predominating in both cases the change of red color. Conclusion: It was observed that patients with MS have significant visual changes and it is assumed that there is worsening with increasing age, since the 5 people with the greatest impairment were above 35 years.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57484

Title: PILOT PROJECT: PERFORMANCE OF PATIENTS WITH MULTIPLE SCLEROSIS, IN THE USE OF VIRTUAL REALITY

Authors: Ana Maria Canzonieri; Camila Miliani Capelini; Talita Dias da Silva; Thais Massetti; Carlos Bandeira de Mello Monteiro; Giulianna Mendes Ferrero; Juliana Aparecida Rhein Telles; Rosimeire de Brito; Maurício Ossamu Bando; Lucas Felipe Ribeiro dos Santos; Thais Mira Simandi; Roger Pereira Silva;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: Multiple sclerosis (MS) inflammatory disease, chronic and demilelinizing central nervous system, affects young adults and more women, and can trigger cognitive changes. Objectives: To demonstrate the performance of MS patients in the use of virtual reality. Methods: Pilot project of virtual reality games in 6 patients with MS, 5 women and 1 man, in Social Civil Institution, in São Paulo. Results: Sample between 23 and 60 years old, 4 people with higher education, sickness time between 10 and 24 years, 3 people with recurrent type of remitting and 3 with secondary progressive, 3 people with EDSS 3, with EDSS 6.5 are 2 People and 1 with EDSS 6. The fatigue assessment scale with values varying between 19 and 53, indicating varied states of fatigue, only 1 person with anxiety evaluation and depression in moderate state, in the evaluation of the psychological test Pyramid Pfister 3 people receive the external stimulus broadly and somehow manage to deal with it, 2 people receive the stimulus in a restricted way and do not know how to deal with it. They performed 3 types of games without any intercurrences (Timing-Fits-Move Hero) and all had adequate fatigue and retention time and low number of errors. Conclusion: In this pilot project it was observed that there is no interference of emotional and cognitive alterations, neither of EDSS, age and time of illness for the practice of games with virtual reality, supposing to be motivating, since the performance was within the expected one People without disease and there was no intercurrence.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57502

Title: POSSIBLE DEVELOPMENT OF CANCER IN PATIENTS TREATED WITH NATALIZUMAB: TWO CASE REPORTS

Authors: Lucas Cruz Costa Leal; Felipe Moreira Dias; Carlos Bernardo Tauil; Milena Magalhães Lima; Aristeu Lopes Barbosa; Ana Kariny Bezerra da Silva;
Institution: HOSPITAL DE BASE DO DISTRITO FEDERAL

Abstract: INTRODUCTION: Multiple sclerosis (MS) is an inflammatory demyelinating disorder of the central nervous system (CNS). Monoclonal antibody-based treatment offers new therapeutic options for the management of MS. Natalizumab is a humanized recombinant monoclonal antibody that interferes with the migration of leukocytes into the CNS. The drug reduces MS relapses, as well as new inflammatory lesions on magnetic resonance imaging (MRI), and is highly clinically effective. Unfortunately, rare neoplastic and infectious complications seen in immunosuppressed patients are also starting to be reported. MATERIAL AND METHODS: Descriptive case reports and literature review. RESULTS: A 60-year-old woman with relapsing-remitting multiple sclerosis for seven years, developed microcytic anemia and a tumor mass of probable ovarian origin, following monthly natalizumab infusions for 24 months. Another 45 year-old woman with a diagnosis of relapsing-remitting multiple sclerosis eight years ago, in use of the 35th dose of natalizumab, presented an increase in the dimensions of a previously diagnosed meningioma, and also presented oval lesions in the ovary and uterus. Both patients are under investigation for gynecological lesions DISCUSSION AND CONCLUSIONS: It is difficult to establish a direct causal association between natalizumab use and the development of gynecological cancer or meningioma growth. However, it is important to document this event in the available literature given prior questions regarding natalizumab use and the development of other rare lymphoproliferative disorders such as primary central nervous system lymphoma (PCNSL) and peripheral T-cell lymphoma. As long-term use of natalizumab increases, heightened clinical suspicion remains imperative given the potential unanticipated complications from this potent method of immunosuppression.

Contact: LUCAS CRUZ COSTA LEAL - lucascruzleal15@hotmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57465

Title: RELATIONSHIP BETWEEN EXPANDED DISABILITY STATUS SCALE (EDSS), MANUAL SKILLS AND GAIT IN MULTIPLE SCLEROSIS

Authors: Andréa Gomes Moraes; Cintia Ramari; Carlos Bernardo Tauil; Ana Cristina de David;
Institution: UNIVERSIDADE DE BRASÍLIA

Abstract: Introduction: People with multiple sclerosis (MS) present symptoms that influence their daily lives. The Expanded Disability Status Scale (EDSS) evaluate neurological status during the course of MS. The EDSS and functional tests may be useful in order to analyze motor performance in MS patients and to investigate the effectiveness of rehabilitation treatments. Thus, the purpose of the study was to investigate the relationship between the level of disability by EDSS and manual skills and gait parameters (distance and speed). Methods: 22 women with relapsing-remitting MS, EDSS (1-5) were included in this study (age: 35.14 ± 9.93y; body weight: 61.47 ± 13.72 kg; height: 161 ± 0.56 cm). Manual skills was measured with the Nine Hole Peg Test (NHPT) from two trials with each hand: dominant (DH) and non-dominant (NDH). The distance and gait speed were evaluated from 6-minute walking test. The study was approved by the ethics committee, CAAE:67098217.5.0000.5553. Results: The results showed a significant positive relationship between the EDSS score and the time to perform the NHPT (DH, $r = 0.46$ / NDH, $r = 0.45$), $p < 0.001$. There was also a significant negative correlation between EDSS and gait variables: distance ($r = -0.56$) and velocity ($r = -0.56$), $p < 0.001$. Discussion and Conclusions: Motor skill is often reduced in people with MS, due to factors such as tremors, muscle weakness and deficit of coordination. The higher the EDSS score shorter the distance and lower the velocity reached. People with MS may have gait alterations due to aspects such as muscle weakness and balance deficits. 1. Feys F, Lamers I, Francis G et al. The Nine-Hole Peg Test as a manual dexterity performance measure for multiple sclerosis. Mult Scler. 2017;23: 711-20. 2. McLoughlin JV, Barr CJ, Patritti B et al. Fatigue induced changes to kinematic and kinetic gait parameters following six minutes of walking in people with multiple sclerosis. Disabil rehabil . 2016;38: 535-43.

Contact: ANDRÉA GOMES MORAES - andreafisiounb@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57950

Title: RELATIONSHIP OF TOTAL REACTION TIME WITH COMMITMENT IN MULTIPLE SCLEROSIS

Authors: Ana Maria Canzonieri; Camila Miliani Capelini; Talita Dias da Silva; Thais Massetti; Carlos Bandeira de Mello Monteiro; Giulianna Mendes Ferrero; Juliana Aparecida Rhein Telles; Lucas Felipe Ribeiro dos Santos; Thaís Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: When a test is used to measure reaction time through computer software, it is possible to record the elapsed time between the onset of the stimulus and the completion of the task, and we call this the Total Reaction Time (TRT). The proposal for a test that can assess mental fatigue from the TRT can answer questions involving activities that require attention and rapid response. Multiple sclerosis (MS) is a demyelinating disease of the central nervous system and levels of disability in MS can be quantified through the Expanded Disability Status Scale (EDSS). OBJECTIVES: This study aimed to assess mental fatigue from the Time of total reaction (TRTFadiga - TRTF) with the time of simple visual total reaction (TRTSimples - TRTS) in people with MS, correlating with the degree of commitment by the evolution of the disease. METHODS: Twenty adults diagnosed with MS, aged 23-60, participated in the two tasks proposed by the TRT_S2012 software. They were divided into two groups, one with lower disease impairment (G1 - EDSS from 0 to 3.5), and another group with greater impairment (G2 - EDSS from 4 to 8). Results: In G1 the mean age was 43.9 ± 12.3 and EDSS = 2.18 (mean); In G2 was 50.1 ± 13.0 and EDSS = 6.22 (mean). Regarding TRT, the Student‘s t test showed a significant difference between the TRTS groups (p = 0.044), G1 = 351.1 ± 62.4ms and G2 = 457.7 ± 184.1ms; And the initial TRTF (p = 0.023), with G1 = 371.4 ± 45.5ms and G2 = 483.81 ± 172.8ms. In the final TRTF there was no difference between the groups (p = 0.143), G1 = 365.7 ± 33.2ms and G2 = 434.9 ± 207.3ms. Conclusion: Considering the results among the groups, people with greater disability due to MS (higher EDSS) presented longer reaction times as measured by computational software, and therefore a worse response of neuromuscular coordination.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57911

Title: SOCIAL SKILLS AMONG PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Marcos Barbosa de Almeida; Yara Dadalti Fragoso;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: Social skills are the determinants of a healthy link between one person and all others in their milieu. When this link is weak or dysfunctional, interpersonal relations can be damaged. This leads to distress and loss of quality of life. Individuals with chronic illnesses may have a more passive attitude towards their milieu, expecting others to take a front role in developing social relations on their behalf. Coping strategies, executive functioning, emotional regulation and assertive planning are all conditions that may be negatively affected when an individual takes a passive role in society. The objective of the present study was to assess the social skills of patients with multiple sclerosis (MS) in order to further elucidate the complex psychological traits of this disease. Methods: Patients with MS (n=40) and socioeconomically matched control subjects (n=40) were individually assessed using the Social Skills Inventory (IHS-Del-Prette). Results: Patients with MS scored significantly worse in social skills than did control subjects. While 100% of the control individuals presented average or above-average skills, 65% of the patients with MS were below average for these skills. In percentages, 60.2% of the controls scored well for social skills, in comparison with 26.6% of the patients. Conclusion: The psychological aspects of MS that may affect quality of life go beyond mood disorders. Social skills may be important components for rehabilitation of patients with MS who need to improve their personal and professional lives.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 58002

Title: SPEECH THERAPY IN PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Beatriz do Nascimento Luna Barbosa; Beatriz do Nascimento Luna Barbosa; BIANCA ETELVINA SANTOS DE OLIVEIRA BIANCA OLIVEIRA; BIANCA ETELVINA SANTOS DE OLIVEIRA BIANCA OLIVEIRA; LUCIANA FERREIRA SOUZA DOS SANTOS; LUCIANA FERREIRA SOUZA DOS SANTOS; LINDINALVA FERREIRA SOUZA DOS SANTOS; LINDINALVA FERREIRA SOUZA DOS SANTOS; ANDREZA BARBOSA SILVA; ANDREZA BARBOSA SILVA; ADRIANA DA CONCEIÇÃO SILVA; ADRIANA DA CONCEIÇÃO SILVA; JAQUELINE RABELO; JAQUELINE RABELO; TATHEANE COUTO DE VASCONCELOS; TATHEANE COUTO DE VASCONCELOS; GABRIELA BEATRIZ ANDRADE SILVA XIMENES; GABRIELA BEATRIZ ANDRADE SILVA XIMENES; JOSÉ UBIRATAN DA SILVA; JOSÉ UBIRATAN DA SILVA; JULIANA MAGALHÃES LEITE; JULIANA MAGALHÃES LEITE;
Institution: FUNAD - CREMPB

Abstract: Introduction:This paper aims to verify the principal complaints in patients of reference Center in MS of Paraiba State (CREMPB), rehabilitation Methodology: we use medical records since may 1st of 2016 until may 1st of 2017,interviews with the speech therapist and Sheet of systematization of speech therapy care to patient with MS. We avaliate the degree of dependency and speech dificulties, chokes. Results: it shows that is crucial the proposal of continuos educational assistance carried our team. the patients presents with ncoordination of facial muscles, fatigue during speech, chokes. Conclusion: we verified that th principal complaints were we can see that the work done in the CREMPB is very similar to the other institutions and that speech therapy is very important in rehabilitation.

Contact: BIANCA ETELVINA SANTOS DE OLIVEIRA - oliveira_bes@hotmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57937

Title: SUICIDAL IDEATION AND BEHAVIOR, ANXIETY AND DEPRESSION ARE HIGHLY PREVALENT IN PATIENTS WITH MULTIPLE SCLEROSIS

Authors: Vitória Lana Massarente; Carlos Bernardo Tauil; Rafael Paternò Castello Dias-Carneiro; Elaine de Carvalho Giovannelli; Charles Peter Tilbery; Leonilda Maria Barbosa dos Santos; Leopoldo Luiz dos Santos-Neto;
Institution: SANTA CASA DE SÃO PAULO

Abstract: Introduction: Psychiatric disorders are frequent in Multiple Sclerosis (MS) patients and often present a challenge in treatment and symptom management. This study aimed to assess the prevalence and severity of suicidal ideation and behavior, anxiety and depression in MS patients, also presenting potential tools in the management of mood disorders, through the application of screening scales. Material and Methods: This was an observational cross-sectional study with 133 relapsing-remitting MS patients from two participating hospitals. Patients were interviewed using validated depression and anxiety diagnostic scales: Hospital Anxiety and Depression Scale (HADS), Beck Suicide Inventory (BSI) and Beck Depression Inventory (BDI-II). Results: A total of 133 patients were enrolled, of which 29 men and 104 women, 30% with 18 to 30 years and 70% over 30 years. The Expanded Disability Status Scale (EDSS) showed a variation of 0.0-7.5, with values ≤ 5.0 on 84,2% of patients. We detected, using the BSI, 33 patients (22,5%) with current suicidal ideation, and 10 patients (7,5%) who attempted suicide in the past. According to HADS scores, 29 patients (21,8%) had anxiety, 6 (4,5%) depression and 22 (16,5%) both. Conforming to the BDI-II, 58 (43,6%) had minimal depression, 35 (25,3%) mild, 32 (24%) moderate and 8 (6%) severe. Only 48 patients (36%) were receiving antidepressants. As soon as the patients at risk were identified, they've started receiving psychotherapeutic support and have been referred for psychiatric evaluation. Discussion: Suicidal ideation and behavior, anxiety and depression were frequent however undertreated in this multi-center MS cohort, indicating that mental health care should be an integral part of MS Referral Centers. Conclusion: Psychiatric symptoms and risk of suicide are prevalent in patients with MS and should be emphatically approached so that treatment can be instituted quickly, since there is potential life risk.

Contact: VITÓRIA LANA MASSARENTE - vi_lana_27@hotmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57827

Title: SYSTEMATIC REVIEW AND META-ANALYSES ON THE POTENTIAL BENEFIT OF IMMUNOGLOBULIN USED FOR PREVENTION OF POSTNATAL RELAPSES IN WOMEN WITH MULTIPLE SCLEROSIS

Authors: Yara Dadalti Fragoso; Gleysson Rodrigues Rosa; Anthony Terrence O'Brien; Eduardo de Almeida Guimaraes Nogueira; Vitor Martinez de Carvalho; Sonia Castedo Paz.;
Institution: UNIVERSIDADE METROPOLITANA DE SANTOS

Abstract: Introduction: One of the main concerns regarding pregnancy in women with multiple sclerosis (MS) is the increased relapse rate after delivery. In order to decrease this risk, immediate postpartum use of intravenous human immunoglobulin (IVIG) has been proposed by some research groups. Although this treatment seems safe, conflicting results on its efficacy have been published. The present study is a systematic review and meta-analyses on the efficacy of IVIG for prevention of postnatal relapses in women with multiple sclerosis. Materials and methods: The search was carried out individually by the authors. The terms "multiple sclerosis" OR "MS" AND "pregnancy" OR "gestation" OR "partum" OR "post-partum" OR "puerperium" AND "immunoglobulin" were used in the following databases: EMBASE, Cochrane Foundation, PubMed, SciELO, LILACS, EMBASCO and Google Scholar. These terms (in English) needed to be in the title or in the abstract. Only full papers with results on patients treated with immunoglobulin during the postnatal period were included. This project has been registered in the "International prospective register of systematic reviews (PROSPERO)", and the meta-analysis was performed using Cochrane RevMan 5. Results: The initial search returned 321 papers. After removal of duplicates, 288 papers were selected for abstract review. There were 22 eligible articles, but 11 did not fulfill the criterion of using original data from patients. Therefore, the systematic review included 11 articles for assessment, although only in six of them there were possible comparisons on the effect of the drug in the outcome. The articles did not have uniform methodology and some used historical controls. Inclusion of patients exposed to other potential risk-protection factors also varied among the studies, thus making interpretation of the results particularly difficult. Overall, the odds of a postpartum relapse in the first six months after conception was 59% lower in the postpartum IVIG treatment group than in the control group: 0.41 [95% CI 0.25-0.70, $p \leq 0.001$, $I2=20\%$, $Q=7.53$ ($p=0.27$)]. Conclusion: There are few studies on preventive use of postnatal IVIG to prevent relapses in women with MS. Methodology varied widely among them. The odds in favor of this therapeutic approach were small and require further investigation.

Contact: YARA DADALTI FRAGOSO - yara@bsnet.com.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57987

Title: THE CLINICAL AND NUTRITIONAL PROFILE OF PATIENTS FOLLOWED AT REFERENCE CENTER OF INFLAMMATORY DEMYELINATING DISEASES

Authors: Larissa da Silva Albuquerque; Paula Maria Cals Theophilo Maciel; Éllen Sousa Paz; Patrícia C Rocha; Keyla Rejane Frutuoso de Morais; Amene Cidrão Lima; José Araujo de Andrade Neto; Gabriela Joca Martins; Lucas Silvestre Mendes; José Artur Costa D'Almeida; Maria Luisa Pereira de Melo; Verônica Tavares Aragão;
Institution: HOSPITAL GERAL DE FORTALEZA

Abstract: INTRODUCTION: Autoimmune disorders of the Central Nervous System (CNS) have complex pathogeneses that are not well understood. OBJECTIVE: To describe profile clinical and nutritional at the multiple sclerosis (MS) and neuromyelitis optica (NMO) patients followed at refence center. METHODS: This descriptive study was approved by the Human Research Ethics Committee of the Hospital Geral de Fortaleza (number 421411). A cross-sectional analytical study was conducted with 57 patients with MS and 23 with NMO followed at a reference center of Hospital Geral Fortaleza (HGF), in Ceará, Brazil. Were evaluated: age of diagnosis, Expanded Disability Status Scale (EDSS), body mass index (BMI), waist circunference (WC), body fat percentage (% BF). Values are presented as mean ± SD unless otherwise specified. Averages comparisons (Student T Test or Wilcoxon) and Spearman correlation tests were performed. Statistical significance was at $p<0.05$. RESULTS: It was observed that the mean age at diagnosis was significantly higher ($p = 0.0001$) in patients with NMO (39 ± 12) than in patients with MS (28 ± 10). NMO patients had significantly higher mean EDSS (4.0 ± 2.5 vs 1.6 ± 1.8; $p = 0,0001$). 43.4% of the NMO patients had EDSS higher than 4.5, whereas only 10.7% of the EM patients had above that cutoff point. NMO patients had significantly higher BM (26.6 ± 3.8 vs 24.6 ± 3.7, $p = 0.02$), WC (93.6 cm ± 13.0 vs 83.4 cm ± 11.8, $p = 0,001$) and % BF (30.9 ± 9.2 vs 29.4 ± 5, 5, $p = 0.05$). DISCUSSION AND CONCLUSIONS: NMO patients have a higher incidence of overweight and obesity associated with abdominal fat accumulation than MS patients. This fact may be associated with functional limitation and treatment with corticosteroid. Therefore the sample size was limited and it must be regarded as preliminary to larger investigations.

Contact: VERÔNICA TAVARES ARAGÃO - veronicatavares.med@gmail.com

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57475

Title: THE EVALUATION OF A PROGRAM OF PILATES IN PATIENTS WITH MULTIPLE SCLEROSIS WITH CLINICAL SUBTITLE RECOVERY

Authors: Ana Maria Canzonieri; Giulianna Mendes Ferrero; Juliana Aparecida Rhein Telles; Bruna Helena Sciarinni; Bruna Leite Gaudereto; Lucas Felipe Ribeiro dos Santos; Thais Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: INTRODUCTION: The Multiple Sclerosis is an inflammatory disease mediated by the immune system that causes lesions in the brain and spinal cord. The correlation between clinical presentations and symptoms is extremely complex. The clinical subtypes of Multiple Sclerosis are recurrent (RR), secondarily progressive (SP) and primarily progressive (PP). The RR subtype is defined as clinical outbreaks or lesions in the central nervous system (CNS), with major phenotypic changes. Disability levels should be quantified through the Expanded Disability Status Scale. They are subdivided into eight functional systems with a total score that characterize the disability stage. OBJECTIVE: To investigate the evaluation of patients with MS RR after a Pilates program. METHODS: This study was conducted at a Social Organization in São Paulo. 13 patients aged 25 to 70 years, EDSS of 2.5 to 6.0 were evaluated for 9 sessions. The analysis was based on the evaluation of upper and lower distal limb strength with a manual measurement test based on the Medical Research Council, with Berg balance scale, Fatigue with Modified Fatigue Impact Scale (MFIS), and urinary dysfunction with the Cycle International Consolation of Incontinence (ICIQ). RESULTS: There was a statistically significant positive result in the cross tabulation of the distal muscular force of the left lower limb. The other variables that crossed gender, age and other functional scales were not statistically significant. CONCLUSION: There was a lower level of improvement of functional scales and Pilates program. Although, the number of sessions and the sample were small, justifying the results of our comparison. In clinical practice, we observed an improvement in the signs and symptoms of these patients. Further studies should be done to prove the importance of Pilates in the rehabilitation of patients with Multiple Sclerosis.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57451

Title: THE RELIABILITY AND VALIDITY OF BVMT-R IN MULTIPLE SCLEROSIS

Authors: Marco Aurélio Gralha de Caneda; Daissy Liliana Mora Cuervo; NATHERCIA ESTEVAM MARINHO; MARIA CECILIA ARAGON DE VECINO;
Institution: HOSPITAL MOINHOS DE VENTO

Abstract: Abstract Background: Cognitive Impairment (CI) is a common and distressing problem of multiple sclerosis (MS). Its identification is considered complicated and is sometimes omitted in the routine evaluation by neurologists. The BICAMS (Brief International Cognitive Assessment for Multiple Sclerosis) is a promising tool to overcome this difficulty. Despite this, there's some criticism about the subjectivity of assessment of BVMT-R (Brief Visuospatial Memory Test – Revised), one of the components of this short battery. Objective: The aim of this paper was to approach the validity and reliability of BVMT-R applied by neurologist raters, without previous specific training. Methods: BICAMS was applied by three raters to seventy subjects, forty MS patients and thirty healthy controls. In the MS patients group, the coefficients of agreement between raters and the internal consistency of BVMT-R were assessed. The correlation of BVMT-R with the other tests of BICAMS, the CVLT II (California Verbal Learning Test II) and SDMT (Symbol Digit Modalities Test) was calculated too. Results: BVMT-R presented a moderate inter-rater Coefficient of Agreement of 0.62, but an excellent Intraclass Correlation Coefficient of 0.85. The internal consistency was high ($\alpha = 0.92$). The correlation of BVMT-R with CVLT II was moderate, $\rho = 0.36$ ($p<0.025$); but with the SDMT the correlation was strong, $\rho = 0.60$ ($p<0.01$). Conclusions: The BVMT-R is a reliable instrument in approach of CI of patients with MS, even between practitioners without previous training. It presents a significant association with the information processing speed what should be considered in the assessment of its scoring.

Contact: MARCO AURÉLIO GRALHA DE CANEDA - MCANEDA@TERRA.COM.BR

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57468

Title: TIME OF MOVEMENT IN THE FUNCTION OF DIFFICULTY LEVEL IN VIRTUAL TASK IN MULTIPLE SCLEROSIS: PILOT STUDY

Authors: Ana Maria Canzonieri; Camila Miliani Capelini; Talita Dias da Silva; Thais Massetti; Carlos Bandeira de Mello Monteiro; Giulianna Mendes Ferrero; Juliana Aparecida Rhein Telles; Lucas Felipe Ribeiro dos Santos; Thais Mira Simandi;
Institution: ABEM - ASSOCIAÇÃO BRASILEIRA DE ESCLEROSE MÚLTIPLA

Abstract: Introduction: The Multiple Sclerosis (MS) is a demilelinating disease of the central nervous system, which triggers motor, cognitive and functional impairment in daily life. Objectives: To evaluate the movement time according to the level of difficulty in people with MS, in a virtual task. Methods: The virtual task was to perform movements in a virtual interface based on Fitts' law, which presents an inverse relationship of increase in speed and decrease in motion accuracy. For this, 4 progressive difficulty indexes (IDs) were used: ID1, ID2, ID3 and ID4, each ID was performed three times while the total time of movement (time / touch) was captured. The movement time was obtained by dividing between pre-set seconds for the task (10) and the number of touches performed on the target. The software that simulated the task was Fitts Reciprocal Aiming Task v.1.0 (Horizontal). The results present the means of the 3 trials in each ID. Six MS patients were evaluated, being 5 women and 1 man, in Civil Social Institution, in São Paulo. Results: Sample between 23 and 60 years old, 4 people with higher education, sickness time between 10 and 24 years, 3 people with recurrent type of remitting and 3 with secondary progressive, 3 people with EDSS 3, with EDSS 6.5 are 2 People e1 with EDSS 6. Regarding the Fitts task, the average movement time in ID1 was 103ms, in ID2 it was 151ms, in ID3 it was 153ms and in ID4 it was 225ms. Conclusion: Considering the results in the different difficulties presented, people with MS increased their movement time as there was an increase in the difficulty of the task, as proposed by the Fitts Law. There was, therefore, a longer movement time when greater precision of movement was demanded. It was also observed that there is no interference of emotional and cognitive alterations, neither of EDSS, age and time of illness in the motor performance, all of which were able to perform the task.

Contact: ANA MARIA CANZONIERI - pesquisa.cientifica@abem.org.br

Modality: Poster Presentation

Theme: MS treatment and multidisciplinary care

Code: 57500

Title: USE OF ALEMTUZUMAB AS TREATMENT OF MULTIPLE SCLEROSIS: A CASE REPORT

Authors: Cristiane de Camargo e Silva; Douglas Tomio Nakata; Ana Maria Hoppe; Natália Dressler Camillo; Marlise de Castro Ribeiro;
Institution: UFCSPA

Abstract: Introduction: Alemtuzumab is a drug composed by monoclonal antibody Cd52 and not incorporated in the Brazilian clinical protocol and therapeutic directorates for Multiple Sclerosis (MS), so there are few patients using it currently. Case Report: Case 1: E.S, 35 years, diagnosed in 2009, treated with intramuscular betainterferon, presenting an expanded scale of the state of incapacity (EDSS) of 0. In 2012, after two severe relapses (EDSS 6), natalizumab was iniciated. Patient kept with it for a year with good results (EDSS 4). In 2014, patient decided to stop natalizumab because he was JC positive. During the washout for alemtuzumab, patient presented a new relapse (EDSS 5.5). First infusion cycle was performed six months ago, presenting cutaneous rash in the 5th day with complete improvement with antihistamine and significant reduction of total lymphocytes in the first week with partial improvement over the months. There were no adverse effects until now (EDSS 5). Case 2: T.T, 26 years started treatment with subcutaneous betainterferone in 2010 (EDSS 0). In 2013, patient presented clinical worsening after two relapses (EDSS 6). The treatment was switched to natalizumab. A year later, there was a new relapse (EDSS 7) and was switched to fingolimode. However, there were new relapses after six months (EDSS 9). Seven months ago, the patient performed the first infusion of alemtuzumab without complications, presenting a significant reduction of total lymphocytes and improvement of symptoms in the first month. Currently, the patient has significant improvement of language and axial coordination (EDSS 8), without adverse effects to date. Both patients are monitored monthly at our ambulatory with hemogram, urinalysis and quarterly with thyroid function. Conclusion: Infusion of Alemtuzumab showed as safe and without dangerous side effects. Besides, there were improvement in both EDSS and both patients are free of relapses so far.

Contact: DOUGLAS TOMIO NAKATA - dtnnakata@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57503

Title: ACUTE INWARD MYELITIS PATIENTS: CAN NEUROMYELITIS OPTICA OUTRANGE OTHER POSSIBLE ETIOLOGIES IN THE NORTHEAST BRAZILIAN POPULATION?

Authors: André Borges Ferreira Gomes; Lucas Silvestre Mendes; Gabriela Joca Martins; José Artur Costa D'almeida; Glauber de Menezes Ferreira; Fernanda Martins Maia;
Institution: HOSPITAL GERAL DE FORTALEZA

Abstract: INTRODUCTION: IN THE LAST TWO DECADES, A LOT OF INFORMATION AND DATA ABOUT NEUROMYELITIS OPTICA SPECTRUM DISORDERS (NMOSD) HAS BEEN DISCOVERED, ESPECIALLY AFTER ANTI-AQUAPORIN4 ANTIBODY HAS BECOME WIDELY USED. DIFFERENTLY FROM MULTIPLE SCLEROSIS, NOW IT IS WELL KNOWN THAT NMOSD PREVALENCE IS GREATER IN ASIANS AND AFRO-DESCENDENTS. FOR THIS REASON, WE BELIEVE THAT IN BRAZILIAN NORTHEAST (GREATER AFRO-DESCENDING COLONIZATION), NMOSD INCIDENCE IS RELATIVELY GREATER THAN IN THE SOUTH (GREATER CAUCASIAN COLONIZATION). OBJECTIVE: TO DESCRIBE EPIDEMIOLOGICAL DATA REGARDING INPATIENTS MYELITIS CASES. MATERIAL AND METHODS: RETROSPECTIVE ANALYSIS OF A SERIES OF MYELITIS CASES ADMITTED IN A TERCIARY CARE HOSPITAL IN FORTALEZA. DATA WAS COLLECTED FROM MEDICAL RECORDS AND A DESCRIPTIVE ANALYSIS WAS PERFORMED. RESULTS: DURING 2016, AT LEAST 21 PATIENTS WERE ADMITTED IN THE INWARD NEUROLOGY FACILITY DUE TO MYELITIS DIAGNOSIS. A HUGE FEMALE PREDOMINANCE WAS DETECTED (90,5%), WITH ONLY TWO MALE DESCRIBED IN THIS SERIES. THE MEDIUM AGE WAS 36,7 YEARS OLD. REGARDING POSSIBLE CAUSES, SEVEN HAD NMOSD, FIVE HAD A MONOPHASIC LONGITUDINALLY EXTENSIVE TRANSVERSE MYELITIS (LETM) AND ONLY 03 HAD MULTIPLE SCLEROSIS (MS). OTHER ETIOLOGIES DESCRIBED WERE TWO IDIOPATIC SHORT MYELITIS, ONE HAD MYELITIS DUE TO ACUTE DISSEMINATED ENCEPHALOMYELITIS (ADEM), ONE HAD MYELITIS DUE TO LUPUS, ONE HAD HTLV ASSOCIATED MYELOPATHY AND ONE HAD HIV ASSOCIATED MYELOPATHY. CONCLUSIONS: OUR DATA SHOWED THAT ONLY THE MINORITY OF INPATIENT MYELITIS CASES CORRESPOND TO MULTIPLE SCLEROSIS. THIS COULD BE EXPLAINED BY TWO FACTS: GREATER AFRO-DESCENDIG COLONIZATION IN THIS REGION, AND MULTIPLE SCLEROSIS LESSER SEVERITY WHEN COMPARED TO NMOSD (SOME MS PATIENTS HAD MYELITIS THAT DID NOT NEED TO BE TREATED IN THE HOSPITAL). FURTHER PROSPECTIVE STUDIES ARE NEEDED TO EXPLORE THIS FINDING.

Contact: LUCAS SILVESTRE MENDES - lucasilvestre@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57807

Title: ANTERIOR UVEITIS AS THE OPENING MANIFESTATION OF NEUROMYELITIS OPTICA SPECTRUM DISORDER

Authors: Alice Horta Azevedo de Castro; Mariana Andrade Fontenelle; Natália Cirino Talim Menezes; Anna Christina Higino Rocha; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background - Anterior uveitis (AU) is an inflammation that is primarily located in the anterior chamber (iritis) or in the anterior chamber and anterior vitreous (iridocyclitis). It is the most common type of uveitis occurring across the world and is usually idiopathic or associated with systemic diseases or infections. Association of anterior uveitis with demyelinating diseases of the central nervous system is very rare. Herein we report a patient with seropositive neuromyelitis optica spectrum disorder in whom anterior uveitis was the opening manifestation of the disease. Case report – A previously healthy, 39-year old white female, presented with visual loss in her left eye (LE) associated with pain, photophobia, redness, and tearing in thie eye. Visual acuity was 20/20 in the right eye (RE), and 20/20- in the left eye. Biomicroscopic examination disclosed anterior chamber cells (2+), fine precipitates on the corneal endothelium and normal fundi. A new examination two days later, as the patient complained visual deterioration, revealed a mild edema of the left optic disc. She was treated with tropicamide and prednisone eyedrops with complete recovery in few weeks. A new episode of blurred vision in the LE occurred six months later associated with eye pain. Visual acuity remained unchanged but there were moderate optic disc swelling with retinal vascular congestion in the LE. Optical coherence tomography revealed a borderline value of the retinal nerve fiber layer thickness in the nasal quadrant of the LE. Brain MRI showed a T-2 sequence hypersignal in the orbital segment of the LE. Search for serum aquaporin-4 antibody yielded a positive result. The patient was put on azathioprine. One year later she developed dysesthesia and mild weakness in the left forearm. Spinal MRI showed hyperintensities in T1-T2, T4-T5, T6-T7, T8 levels. Conclusion – The present report shows that NMOSD may occur in association with anterior uveitis. This association has not been reported to date.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57898

Title: AUTOANTIBODY PROFILE (MOG-IGG-SEROPOSITIVE, AQP4-IGG-SEROPOSITIVE AND SERONEGATIVITY) AS A VISUAL OUTCOME PREDICTOR AFTER OPTIC NEURITIS

Authors: Laís Maria Gomes de Brito Ventura; Milena Sales Pitombeira; Ana beatriz Ayroza Galvão ribeiro Gomes; Aline Moura Brasil Matos; renata Barbosa Paolilo; Samira Luisa Apostolos Pereira; Douglas Kazutoshi Sato; Luana M Oliveira de Paula Salles; Dagoberto Callegaro;
Institution: UNIVERSIDADE DE SÃO PAULO

Abstract: Introduction:Acute optic neuritis(ON) is the most common optic neuropathy among young adults. Recent developments regarding to autoantibodies in Neuroimunology raises the possibility of improving the physiopathological understanding and future treatments. Besides this, there are feel data about seronegative ON. We aimed to assess the visual outcome and its predictors in a cohort of inaugural ON according to the antibody profile: Anti-aquaporin-4(AQ4-IgG), Anti Myelin oligodendrocyte glycoprotein(MOG-IgG) and seronegative group from a specialty neuroimunology center. Methods:Consecutive patients admitted at an university-based Neuroimunology Clinics from 2012 to 2017 were enrolled. Inclusion criteria: isolated inflammatory ON and investigation of autoantibodies AQ4 and MOG-IgG by a cell-based immunoassay(CBA). Clinical records assessed: severity, recurrence, radiologic features and treatment. Logistic regression was modeled for multivariate adjustment and searching for predictors of visual improvement. Results:Forty-two patients were included, mean age of 42y, 78%female. Ten patients(23%) were AQ4-IgG positive, 14(33%) MOG-IgG and 18(42%) were seronegative. There was no difference regarding age, gender, clinical severity (worst visual acuity-VA) or recurrence. Severe visual impairment(VA<20/200) on last follow-up was less frequent among MOG(14%) than AQ4(60%) and Seronegative(50%) groups(p=0.044). Serologic status was the only predictor of improvement of VA on the last follow up, measured by the change among the 3 categories: severe (<20/200), moderate(20/50 to 20/200) and mild ON(>20/50) (p=0.029). After multivariate adjustment, including clinical severity and recurrence, the probability of improvement was 79%(95%CI 76-81%) for the MOG group, 38%(95%CI 34-41%) for the Seronegative one and 25%(95%CI 18-32%) for AQ4(p<0.001). Conclusion:MOG-IgG ON had the best prognosis for VA recovery. The seronegative group had an intermediate clinical course when compared to AQ4.

Contact: LAÍS MARIA GOMES DE BRITO VENTURA - laibrito@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57834

Title: BRAINSTEM SYNDROME AND LONGITUDINALLY EXTENSIVE TRANSVERSE MYELITIS (LETM) AS FIRST MANIFESTATION OF ADULT T-CELL LEUKEMIA/LYMPHOMA (ATLL).

Authors: Ana Beatriz Ayroza Galvão Ribeiro Gomes; Herval Ribeiro Soares Neto; Marcelo Delboni Lemos; Dagoberto Callegaro; Samira Luisa Apóstolos Pereira;
Institution: HOSPITAL DAS CLÍNICAS DA UNIVERSIDADE DE SÃO PAULO

Abstract: INTRODUCTION: Multiple sclerosis and neuromyelitis optica are the most common inflammatory disorders of the central nervous system (CNS) and commonly initially present as brainstem syndromes or myelites. They can be mimicked by other inflammatory systemic diseases. We report a fatal case of Chronic Adult T-Cell Leukemia/Lymphoma (ATLL) which initially manifested as a brainstem syndrome associated to a longitudinally extensive transverse myelitis (LETM) CASE PRESENTATION: A 38 year old previously healthy female was admitted to our service with a one and a half month history of corticosteroid unresponsive tetraparesis with a sensory level and brainstem symptoms. She had a family history of HTLV-I-associated myelopathy/tropical spastic paraparesis. Blood workup revealed leukocytosis, positive human T-lymphotropic virus (HTLV) screening test and normal cerebrospinal fluid analysis. Magnetic resonance imaging displayed lesions in the brainstem and spine. High dose intravenous methylprednisolone was initiated with no clinical response - the patient developed a locked in syndrome. Plasmapheresis was initiated. Subsequently, a peripheral blood smear found “flower cells” with a positive CD25 marker – the patient was diagnosed with Chronic Adult T-Cell Leukemia/Lymphoma (ATLL) and treatment (interpheron alpha-2b and zidovudine) was initiated. Notwithstanding the patient passed away. DISCUSSION: The risk of development of ATLL amongst HTLV infected patients is 2- 5%, rarely presenting neurologic symptoms. There are few reports of ATLL with CNS involvement as an initial manifestation- it is even rarer in the chronic subtype. To the best of our knowledge this is the first case of chronic ATLL opening with a rapidly progressive corticosteroid unresponsive brainstem syndrome. CONCLUSION: Inflammatory disorders of the CNS comprise a range of differential diagnosis. A high level of suspicion is needed in order to perform timely differential diagnosis and offer treatment.

Contact: ANA BEATRIZ AYROZA GALVÃO RIBEIRO GOMES - anabagrg@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57487

Title: CASE REPORT: A SEVEN YEAR LONG TREATMENT WITH RITUXIMAB IN PATIENT WITH NMOSD

Authors: Elisa Matias Vieira de Melo; Bruna Acioly Leão; Paula Virginia Tavares do Nascimento; Diogo Haddad Santos; Diego Zanotti Salarini; Sonia Maria Cesar De Azevedo Silva;
Institution: INSTITUTO DE ASSISTÊNCIA MÉDICA AO SERVIDOR PÚBLICO ESTADUAL (IAMSPE)

Abstract: Introduction: Neuromyelitis Optica Spectrum Disorders (NMOSD) are autoimmune demyelinating inflammatory diseases which affect the spinal cord and/or the optic nerve, leading to physical disability. Rituximab is a chimeric monoclonal antibody against the protein CD20, found on the surface of B lymphocytes, which act on the physiopathology of the disease. Rituximab has shown reduction of exacerbations in patients with NMOSD. Objective: To evaluate clinical response of a patient diagnosed with NMO using Rituximab for 7 years. Methods: Review of patient medical records and literature review using PUBMED/LILACS. Case Report: LHC, 67 years old, female, black, presented reduction of visual acuity and paraparesis in 2007, which required the use of a wheelchair. The patient was treated at a different clinic with pulse corticosteroid therapy and afterwards oral prednisone 40 mg/day. In 2010, she came into our practice maintaining the previously described deficits, which prompted the introduction of Rituximab. Patient tested positive for anti-aquaporin-4 antibody. At present, the patient maintains Rituximab infusions every 6 months, EDSS 5 due to visual acuity reduction of 20/800 at her left eye and mild hypoesthesia for touch and pain at the left dimidium, with full recovery of gait. Conclusion: The case exemplifies the efficacy Rituximab in NMO, with significant improvement of the patient's quality of life. Current questioning on the use of this medication concern its inclusion as first line of treatment, the ideal dosage and a protocol for maintenance therapy.

Contact: ELISA MATIAS VIEIRA DE MELO - elisammelo@yahoo.com.br

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57848

Title: CASE SERIES: FIVE YEARS FOLLOW UP OF LATE ONSET NEUROMYELITIS OPTICA SPECTRUM DISORDERS

Authors: Aline de Moura Brasil Matos; Samira Luisa Apostolos Pereira; Milena Sales Pitombeira; Luana M Oliveira de Paula Salles; Pedro Henrique Bruel Torretta; Ana Beatriz Beatriz Ayroza Galvao Ribero Gomes; Lais Maria Gomes de Brito Ventura; Frederico Mennucci de Haidar Jorge; Douglas Kazutoshi Sato; Dagoberto Callegaro;
Institution: UNIVERSIDADE DE SÃO PAULO

Abstract: INTRODUCTION Data on late onset Neuromyelitis Optica Spectrum Disorder (NMOSD) have been recently collected specially on Asia. Most series, revel a higher incidence of disabling longitudinally extensive transverse myelitis (LTME) as the first episode, lower incidence of optic neuritis (ON) and lower life expectancy compared to patients with young adult onset. We have no knowledge of a series with more than 5 years follow up. METHODS We retrospectively review the medical data of patients at our center from Dec/2004 to Mai/2017. Were included patients fulfilling 2015 criteria for NMOSD and excluded those with follow up for less than 5 years. All patients were tested for Anti-NMO and Anti-MOG trough CBA method. RESULTS From 375 patients, Twenty-one (5,6%) were considered late onset (first attack ≥50 years old). Fourteen patients were included. Women were 71,4%. The mean age of onset was 56,5 ± 5,95. The mean years with NMOSD was 7,71 ± 2,27 and the total mean of attacks was 2,93 ± 1,33. As first event, myelitis alone was 64,29%, ON 28,57% and area postrema syndrome associated with myelitis 7,14%. A second attack was seen on 85,7%, from those 57,1% during the first two years of follow up. Half of the sample had a maximum of two attacks. The mean EDSS 3 months after the first attack was 5,86 ± 0,38. ON came first in 28,6% of patients and mean EDSS 3 months after was 2,67 ± 0,58. Anti-NMO was serum positive in 85,6% and the other two patients were Anti-MOG, there were no serum negative patients. Thirteen patients were first treated with Azathioprine (AZA). DISCUSSION This is the first long time follow up series of late onset NMOSD. The inaugural presentation is similar to Asian populations. During a 5 years segment 50% of patients had mostly 2 attacks, but although low recurrence, they were badly injured from the first or second attack already. The high disability resulting from the first or second attack despite proper treatment was reason of concern over prognosis.

Contact: ALINE DE MOURA BRASIL MATOS - alinembmatos@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57861

Title: CHRONIC RELAPSING INFLAMMATORY OPTIC NEUROPATHY ASSOCIATED WITH MULTIPLE AUTOIMMUNE SYNDROME. A FURTHER EVIDENCE OF ITS IMMUNE-MEDIATED PATHOGENESIS

Authors: Mariana Andrade Fontenelle; Alice Horta Azevedo de Castro; Denison Alves Pedrosa; Natália Cirino Talim Menezes; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background – Chronic relapsing inflammatory optic neuropathy (CRION) is a rare condition that may result in severe damage to vision. Although it is usually classified as a type of autoimmune neuropathy because of its characteristic dependence on steroid therapy, a stronger evidence of its immune-mediated pathophysiology remains to be demonstrated. We report a patient with CRION who also had diverse autoimmune phenotypes meeting criteria for diagnosis of multiple autoimmune syndrome (MAS). Case report – A 50-year-old mulattoe female was referred six months after having experienced an attack of painful blurring of vision in the left eye. She was treated with oral prednisone for some weeks with partial recovery. Past history included high blood pressure, adult autoimmune diabetes, vitiligo and Hashimoto's thyroiditis. Neuro-ophthalmologic examination disclosed a visual acuity (VA) of 20/20 in the right eye and counting fingers in the left eye. Ophthalmoscopy revealed mild left optic disc pallor. Serum anti-aquaporin 4 antibody and a comprehensive work-up for infectious, demyelinating and granulomatous conditions were negative. Brain MRI showed an enhanced extensive lesion in the left optic nerve. The patient was put on prednisone. She returned six months later reporting an attack of loss of vision in the right eye following prednisone withdrawal. Visual acuity was 20/60 in the right eye and NPL in the left eye. Treatment with IV pulses of methylprednisolone followed by oral prednisone and azathioprine prompted full recovery of the VA in the right eye. Five attacks of visual loss recurred in the next three years, most of them related to medication reduction or withdrawal. Ophthalmic examination five years after disease onset disclosed VA of 20/400 in the right eye and NPL in the left eye, and marked bilateral optic disc atrophy. Diagnosis of rheumatoid arthritis and ulcerative colitis were also established during this period. Conclusion – The association of CRION and MAS may be a robust evidence favoring CRION as an immune-mediated disease.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57809

Title: DENGUE FEVER-RELATED OPTIC NEURITIS

Authors: Mariana Andrade Fontenelle; Alice Horta Azevedo de Castro; Natália Cirino Talim Menezes; Juliana Machado Santiago Santos Amaral; Denison Alves Pedrosa; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background – Although dengue fever may result in a wide spectrum of neurological and ophthalmological complications, few cases of optic neuritis (ON) have been described to occur in association with the infection. Herein we report a series of six patients who develop optic neuritis during the acute or convalescent phases of the disease. Methods – Patients were seen at the Division of Neuro-Ophthalmology of the Federal University of Minas Gerais Medical School, and had the diagnosis of dengue fever confirmed clinically or by positive serology. Results – Six patients with established diagnosis of dengue virus infection developed ON. In 3 patients loss of vision was observed in the first week, and in 3 patients during the second or fourth week following the opening manifestations of the infection. One patient reported visual loss three days following H1N1 vaccination which was given 10 days after dengue fever remission. There were 4 females and 2 males with age ranging from 14 to 68 years. Dengue infection was confirmed by serology in 5 patients. Optic neuritis was bilateral in 5 patients. Visual acuity at onset was NPL in 4 eyes, CF in 2, 20/800 in 2, 20/200 in 2, and 20/40 in one eye. Papillitis was observed 4 eyes. Final VA was worse or equal to 20/400 in 6 eyes (NPL in 2), and better or equal to 20/40 in 5 eyes. Nine eyes developed optic atrophy in the follow-up. Brain MRI showed hyperintense signal in the optic nerve in 4 eyes and unspecific small patches in the cerebral white matter in 3 patients. CSF analysis was performed in 5 patients and showed no abnormality. All patients were given pulses of IV methylprednisolone which resulted in partial recovery in 2 and complete recovery in one patient. Conclusion – Optic neuritis may occur as a rare complication of dengue fever during its acute and convalescent phases. Dengue fever-related ON is usually bilateral and may result in permanent and severe visual loss.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57849

Title: FAMILIAL NMOSD WITH GENETIC ANTECIPATION, DIVERSE ANTIBODY FINDINGS AND MISCELLANEOUS CLINICAL PRESENTATIONS

Authors: Aline de Moura Brasil Matos; Samira Luisa Apostolos Pereira; Pedro Henrique Bruel Torretta; Luana M Oliveira de Paula Salles; Frederico Mennucci de Haidar Jorge; Maria Fernanda Mendes; Douglas Kazutoshi Sato; Dagoberto Callegaro;
Institution: UNIVERSIDADE DE SÃO PAULO

Abstract: INTRODUCTION Few data is available on familial presentations of NMOSD and rarely evolving mother and child. Some small series show no difference between family individuals on NMOSD opposite to a possible genetic anticipation reported on MS. The lack of genetic data with sparse relates analyzing HLA similarities are inconsistent and little is known about possible genetic anticipation, antibody profile or natural history of NMOSD on families. We present data on a mother and her two twin daughters. CASE REPORT CASE 1 In 2007, one of the twins presented with behavior alterations, seizures and sleepiness, being extensively investigated on autoimmune encephalopathy (Anti-NMDA, CaspR2, mgluR1, GabaA, AMPA, IgLON5 all negative). She was treated with corticotherapy and cyclophosphamide with partial recovery when started difficulty on ambulation in 2012. CASE 2 the mother, 65 years - carrier of rheumatoid arthritis – presented numbness on her right side and paraplegia on January/2008. On 2010 and 2013, she presented bladder incontinence. CASE 3 On June/2009, the other twin showed loss of strength on her left side. On the next couple years she presented NO and LETM fulfilling criteria for NMOSD without positive serology. LABORATORY The mother tested positive for Anti-NMO (CBA method) and the twins both negative for Anti-NMO and Anti-MOG (both CBA method). TREATMENT All were were treated with AZA, but despite efforts new relapses were seem. DISCUSSION Our three patients met criteria for NMOSD and here we see three curious things. The first, 30 years of difference between mother and twin first attack. The second, almost the same age of presentation between twins. The third, no serum positivity for the twins, but clinical criteria met. It is possible that proper aggrupation of families' data might enlighten different characteristics as we seem here and inclusion of twin data might acquire a bigger importance on family evaluation.

Contact: ALINE DE MOURA BRASIL MATOS - alinembmatos@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57966

Title: INAUGURAL PRESENTATION OF PATIENTS WITH PEDIATRIC-ONSET MULTIPLE SCLEROSIS

Authors: Ana Luiza P. Câmara Araújo; Renata Barbosa Paolilo; Jose Albino Paz; Samira Luisa Apóstolos Pereira; Dagoberto Callegaro;
Institution: USP-SP

Abstract: INTRODUCTION: Multiple sclerosis (MS) is an inflammatory demyelinating disease that usually occurs between 20 and 40 years, however, up to 5% of cases have pediatric-onset. In children, the first clinical manifestation of MS can be confused with other acquired central nervous system demyelinating diseases, especially Neuromyelitis Optica Spectrum Disorders and Acute Disseminated Encephalomyelitis (ADEM). The purpose of this study is to describe the main inaugural manifestation of MS in patients followed at a tertiary neuropediatrics centre in Brazil. MATERIALS AND METHODS: We reviewed all patients from 2007 to 2017 admitted on our service with suspicion of inflammatory demyelinating disease who met the inclusion criteria: diagnosis of MS by the 2010 McDonald's criteria and age under 18 years. The exclusion criteria were patients with infectious or neoplastic disease, and those with missed follow-up. RESULTS: 16 patients were assessed, 31.2% female (5/16). The median follow-up was 3.3 years (0.75-13). The median age in the first symptom was 8.5 years (3-15), of which 11 were less than 10 years old. Patients had median EDSS of 3.0 (1.0-6.0) in the first consultation and 2.0 (0-9.5) in their last evaluation. 43.8% of the cases had the misdiagnosis of ADEM at the first medical care. DISCUSSION AND CONCLUSION: MS is a rare disease among children and can be misdiagnosed as ADEM in its first presentation. In our series, the misdiagnosis of ADEM was more elevated than literature. These results emphasize importance of clinical follow-up, whereas they have different treatment and prognosis.

Contact: ANA LUIZA PEREIRA CAMARA ARAUJO - acluiza@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57486

Title: ISOLATED OPTIC NEURITIS FOLLOWING YELLOW FEVER IMMUNIZATION

Authors: Juliana Machado Santiago Santos Amaral; Natália Cirino Talim Menezes; Alice Horta Azevedo de Castro; Mariana Andrade Fontenelle; Denison Alves Pedrosa; Rodrigo Gonçalves Kleinpaul Vieira; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background - Neurologic disorders occurring in association with yellow fever immunization are rare and most commonly include encephalitis, acute disseminated encephalomyelitis, and Guillain-Barré syndrome. Although isolated optic neuritis (ION) is a well-known complication of some vaccines it has not been clearly associated with yellow fever immunization. Herein we describe a patient who developed ION following yellow fever immunization. Case 1 - A previously healthy 55-year-old mulattoe man presented with painful loss of vision in the left eye seven days following yellow fever vaccination. He was treated with methylprednisolone IV pulses for five days with no recovery. When first seen at our Department visual acuity was 20/20 in the right eye and NPL in the left eye. Fundi examination disclosed normal findings in the right eye, but there was a marked optic disc pallor in the left eye. Brain MRI was normal except for a gadolinium- enhancing hypersignal in the left optic nerve. Search for serum autoantibodies including AQP4-IgG, and CSF analysis were unrevealing. Conclusion – The present report shows that ION must be included among the neurologic complications of yellow fever immunization.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57459

Title: LONGITUDINALLY EXTENSIVE TRANSVERSE MYELORADICULITIS ASSOCIATED WITH DENGUE FEVER

Authors: Denison Alves Pedrosa; Juliana Machado Santiago Santos Amaral; Natália Cirino Talim Menezes; Pâmela Emanuele Lacerda; Rodrigo Gonçalves Kleinpaul Vieira; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background – Dengue fever (DF) is an arbovirus infection which occurs most frequently in tropical and subtropical countries. Although a large spectrum of neurological complications has been described in association with DF, longitudinally extensive transverse myeloradiculitis (LETMR) has just been reported in a poster. Herein, we describe the case of a patient who developed clinical and imaging evidence of LETMR a month after presenting DF. Case report – One month after full recovery of DF a previously healthy 41-year-old man developed paresthesia and pain in the lower limbs, urinary incontinence requiring catheterization, and intestinal constipation. Few days later he presented paresthesia in both upper limbs and weakness of the right arm. He had partial recovery after treatment with IV methylprednisolone pulses. On examination, visual acuity and fundi were normal in both eyes. He had a mild paresis of the upper limbs, paraplegia with absent knee and ankle tendon reflex and decreased sensation in the lower limbs. Spinal MRI showed a gadolinium-enhanced lesion extending from medullary-cervical junction to T5-level, and T2 hyperintensity from T8 to conus medullaris, with contrast enhancement in the cauda equina. A T2-weighted brain MRI showed small patches in periventricular and deep cerebral white matter. Cell-based assay for serum aquaporin 4- IgG yielded a negative result. The patient was put on prednisone and has had no further attacks. Conclusion - Following DF, this patient developed myelitis with both a cervical and thoracic-lumbar longitudinally extensive lesion in association with a cauda equina syndrome LETMR must be included among the neurological manifestation of DF.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57820

Title: MIDDLE CEREBRAL ARTERY OCCLUSION IN NEUROMYELITIS OPTICA SPECTRUM DISORDER

Authors: Letícia Ussem; Natália Cirino Talim Menezes; Patrícia Rafaela Leite Rezende; Juliana Machado Santiago Santos Amaral; Pâmela Emanuele Lacerda; Rodrigo Gonçalves Kleinpaul Vieira; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background - Cerebrovascular abnormalities have very rarely been reported in association with neuromyelitis spectrum disorder (NMOSD). We report a case of a boy with seropositive NMOSD who developed a brainstem syndrome, recurring encephalopathy and unexpected middle cerebral artery (MCA) occlusion. To our knowledge association of NMOSD with MCA occlusion has not been reported to date. Case report – A previously healthy eight-year-old mulattoe boy developed fever, vomiting and headache. A diagnosis of sinusitis was made and he was treated with nasal drops and analgesics. He was then admitted to the hospital because of intractable nausea and vomiting which lasted a three-week period followed by progressive lethargy, drowsiness, gait ataxia, diplopia and dysphagia. On neurological examination he was drowsy and presented anisocoria, nystagmus and ataxia. Brain MRI disclosed T2-hypersignal in thalamus, dorsal brainstem and periaqueductal gray. There was poor response to IV pulses of methylprednisolone and plasmapheresis but a full recovery following treatment with IV human immunoglobulin. One month later the child developed a recurrent attack of gait disturbance, increasing drowsiness, and coma. Brain MRI showed partial recovery of the lesions, but MRA and cerebral angiogram revealed an unexpected occlusion at the M1-segment of the left MCA. Aquaporin 4 antibody was detected in the serum. He had a full recovery following a new course of IV immunoglobulin. The patient was put on azathioprine and did well for 14 months when he had a recurrent attack of encephalopathy. A new brain MRI exhibited an enhanced cloud-like hyperintensity in the left frontal lobe, whereas brain MRA showed that the left MCA remained occluded. Conclusion: Our patient had unsuspected occlusion of the M1- segment of MCA in association with recurrent attacks of brainstem symptoms and encephalopathy. The meaning of this association is unclear. Key-Words: Neuromyelitis optica spectrum disorder, cerebrovascular abnormalities, middle cerebral artery occlusion, encephalopathy, brainstem syndrome

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57908

Title: NEUROIMAGING PROFILE IN PEDIATRIC NEUROMYELITIS OPTICA SPECTRUM DISORDERS (NMOSD).

Authors: Renata Barbosa Paolilo; José Albin da Paz; Carolina de Medeiros Rimkus; Samira Luiza Apostolos Pereira; Ana Luiza Camara Araujo; Lais Maria Gomes de Brito Ventura; Ana Beatriz Aryoza Galvão Ribeiro Gomes; Aline de Moura Brasil Matos; Milena Sales Pitombeira; Pedro Henrique Bruel Torreta; Dagoberto Callegaro; Umbertina Conti Reed; Douglas Kazutoshi Sato;
Institution: HOSPITAL DAS CLINICAS DA FACULDADE DE MEDICINA DE SÃO PAULO

Abstract: Introduction: NMOSD is an inflammatory central nervous system condition mediated by serum aquaporin-4 immunoglobulin G antibody (AQP4-IgG). There are few reports describing neuroimaging profile in NMOSD pediatric onset, specially using the International Painel of NMO Diagnosis (IPND) updated in 2015. Method: Brain, spinal cord and optic MRI were reviewed by a neuroradiology specialist in neuroimmune diseases of patients enrolled in our neuroimmunology service from January 2005 to April 2017 whose NMOSD symptoms began before 18 years-old and met the 2015-IPND criteria. Results: MRI of 16 patients were analyzed. Optic abnormalities: 13(81,3%) patients had optic lesions, 9(69,2%) had optic chiasm and bilateral involvement. Spinal cord abnormalities were found in 14(87,5%): 10(71,4%) had lesions characterized as longitudinally extensive transverse myelitis (LETM); segments involved were cervical (11), thoracic (12) or lumbar (3), and 12/14 (85,7%) had central lesions. Eight (57,1%) patients had gadolinium enhancement and 7(50%) had brightspot. Area postrema/dorsal medulla lesions were found in (53,3%) patients. Brain MRI was normal in 3/16 patients and none had typical multiple sclerosis (MS) lesions. MRI lesions were: 1(7,6%) diencephalic, 1(7,6%) edematous corpus callosum, 2(15,3%) had long corticospinal tract, 3(23%) had periependymal brain, 8(61,5%) patients had periependymal brainstem. Six patients with optic chiasm involvement were AQP4-IgG positive. Conclusion: we found LETM is a common finding in pediatric NMOSD as compared with literature review. Brain findings disclosure lesions typical of NMOSD and MS lesions were not found. AQP4-IgG positivity is associated with optic chiasm involvement patients with optic neuritis (p=0,04). It is important to consider NMOSD diagnosis and early treatment in pediatric patients presenting with optic neuritis and chiasm involvement.

Contact: RENATA BARBOSA PAOLILO - renatabpaolilo@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 58009

Title: NEUROMIELITE ÓPTICA: ASPECTOS CLÍNICOS E FUNCIONAIS DE PACIENTES ACOMPANHADOS EM HOSPITAL TERCIÁRIO

Authors: Lucas Silvestre Mendes; Gabriela Joca Martins; Patrícia C Rocha ; José Araújo de Andrade Neto ; Maria Luísa Pereira de Melo ; Keyla Rejane Frutuoso de Moraes;
Institution: HOSPITAL GERAL DE FORTALEZA

Abstract: INTRODUCTION: Neuromyelitis Optica is an autoimmune inflammatory Central Nervous System disease that is associated with serum anti-aquaporin4 antibodies. It is classically characterized by optic neuritis and longitudinally extensive transverse myelitis. OBJECTIVES: To analyze epidemiological, clinical and functional data of a local NMOSD patients sample. METHODS: A documentary study was performed at the demyelinating diseases outpatient clinic in Hospital Geral de Fortaleza. Data were collected between 2014 and 2017, counting only those cases that met criteria for NMOSD and that were evaluated by physiotherapy. The sample consisted of 35 patients. RESULTS: We noticed that 91.4% (n = 32) were female, with a mean age of 41.1 years (standard deviation of 13.6). Vision loss (reduced visual acuity) was observed in 74.3% (n = 26). Urinary control was preserved in 57.1% (n = 20), while 28.6% (n = 10) reported constipation. Muscle hypertonia was observed in 34.3% (n = 12) and gait alteration in 57.2% (n = 20). The static balance was impaired in 51.4% (n = 18), while fatigue was detected in 42.9% (n = 15). Analysis of muscle strength showed significant muscle weakness (MRC between 48 and 37) in 40% (n = 14). CONCLUSIONS: According to what has already been reported in scientific studies, we noticed a high female prevalence, besides the predominance of the young age group. Gait involvement, impaired static balance, visual deficit, fatigue and muscular weakness represented the main clinical findings and disabilities, affecting the patients‘ quality of life.

Contact: LUCAS SILVESTRE MENDES - lucasilvestre@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57455

Title: NEUROMYELITIS OPTICA AND HEPATITIS B

Authors: Luis Fernando Guimarães; Eduardo Moura Assad Monteiro dos Santos; Cristiane Nascimento Soares;
Institution: HOSPITAL FEDERAL DOS SERVIDORES DO ESTADO

Abstract: Introduction: Neuromyelitis optica (NMO) is an auto-immune disease that affects the central nervous system and causes inflammatory demyelinating lesions on the optic nerves and spinal cord. Its prevalence is approximately 4.4/100.000 people worldwide. Its female to male ratio is 2:1 and it generally affects white patients on the third decade of life and beyond. It is associated with other auto-immune diseases and 20-30% of the cases are related to vaccination or infections. Objectives: To describe a NMO flare on a young black female after hepatitis B infection. Methods/Results: Female, 16 years old, black, previously healthy patient, presented numbness in the right lower limb and after four days shown paresthesia in both lower limbs followed by paraplegia. She was initially diagnosed with Guillain-Barré syndrome. She was then transferred to this neurology department, and by then had bladder dysfunction and sensitive level on T8-T10. MRI shown extensive and swollen cervical spinal cord lesion, longer than three segments (Figure 1). Serum anti-AQP4 was positive. She later presented right optic neuritis, with slowing of P100 wave in this side on the visual evoked potential. She was submitted to high dosage IV steroids and plasmapheresis, with improvement of visual loss and sensitive symptoms. Rheumatologic and infectious screening was negative except for anti-HBc and anti-HBe, which were positive. She is now on outpatient follow-up, using oral prednisone and azathioprine. Conclusion: NMO is a syndrome with wide clinical spectrum and has several possible flare triggers. Auto-immune causes are more common, followed by infectious ones. This case shows the relation between the patient's first sexual intercourse, followed by hepatitis b infection and the triggering of a NMO flare while the viral infection was being treated.

Contact: LUIS FERNANDO GUIMARÃES - luis-fernando-guimaraes@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57499

Title: NEUROMYELITIS OPTICA PHENOTYPE ASSOCIATED WITH ANTI-TNF THERAPY IN PSORIATIC ARTHRITIS

Authors: Mateus Boaventura de Oliveira; Samira Apostolos Pereira; Douglas Kazutoshi Sato; Dagoberto Callegaro; Carolina Rimkus;
Institution: HC-FMUSP

Abstract: Introduction: To describe a case of intractable hiccup and vomiting, followed by new retrobulbar optic neuritis that presented within 8 years of adalimumab treatment initiation in a patient with psoriatic arthritis and prior optic neuritis 4 years ago. Methods: This case was evaluated with visual field testing, brain magnetic resonance imaging (MRI), cerebrospinal fluid (CSF) analysis, and laboratory evaluation, and treated with intravenous methylprednisolone followed by plasmapheresis. Results: A brain and orbital MRI showed T2-weigthed hyperintensity of the postrema area and left optic nerve, this with gadolinium enhancement. CSF findings were 8 cells/µl, with normal protein and absence of oligoclonal IgG bands. Serum aquaporin-4 antibody was negative (analysed by cell-based assays with live transfected cells). Our patient made only a partial visual recovery and was subjected to treatment with Rituximab. Conclusion: Optic neuritis is a potentially sight-threatening complication of anti-TNF therapy. This unusual case can suggest an additional association: lesion of postrema area and recurrence of severe optic neuritis, both considered spectrum of neuromyelitis optica's phenotype.

Contact: MATEUS BOAVENTURA DE OLIVEIRA - mateusboaventura@yahoo.com.br

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57457

Title: NEUROMYELITIS OPTICA: CLINICAL COURSE AND MANAGEMENT IN A PATIENT WITH GOOD OUTCOME - CASE REPORT

Authors: Karen Antonia Girotto Takazaki; Bruno Camporeze; Tamayka Lopes Hespanhol; Renan Binatti; Cesar Henrique Spadafora da Silva; Danielle Honaga; Matheus Mello;
Institution: SÃO FRANCISCO UNIVERSITY

Abstract: Introduction: Neuromyelitis optica (NMO) is clinically characterized by an attack or attacks of optic neuritis and necrotizing myelitis without clinical or magnetic resonance imaging (MRI) evidence of brain involvement or presence of oligoclonal bands in the cerebrospinal fluid (CSF). It is related to NMO-IgG and aquaporin-4. NMO remain as a challenge regarding its diagnostic and therapeutic, and can cause severe disability or death. Objectives: This study aims to describe a case report of NMO associated to a significant therapeutic results in outcome. Case: F.A.M.S., 19 years-old, male, arrived at our service complaining of parestesis and paresis in left lower limb that started in the previous month and progressed quickly to tetraplegia, associated to fecal and urinary incontinence and frequent hiccups. His neurological examination showed hyperreflexia, Babinski sign bilaterally, with high cervical sensitive level. There was no family history of neurologic diseases. In complementary investigation, there were no abnormalities in the CSF's analysis. Brain MRI was normal and spinal cord MRI showed an extensive demyelinating lesion from the medulla to the thoracic spine. He had positive specific antigen aquaporin-4 serium count. The patient was treated with intravenous methilprednisolone for five days. He improved after the treatment, the hiccups were gone, he recovered strength in his arms. He has been using predinisone and Azathioprine for 7 months and nowadays he is taking steps with a walker, fecal and urinary incontinence have improved and the strength in his arms got back to normal, as well as the recovery of manual and complex activities, like playing violin. The EDSS scale improved from 8 to 6.0. Conclusion: This patient with NMO had severe demyelinating lesion in cervical and thoracic spine and despite that he showed improvement in functional capacity during treatment.

Contact: KAREN ANTONIA GIROTTO TAKAZAKI - kgirotto@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57405

Title: NEUROMYELITIS OPTICA: PURIFICATION OF HUMAN IMMUNOGLOBULIN G FOR DETECTION OF AQUAPORIN-4 PROTEIN IN CELL BASED TESTS

Authors: Ana Paula Bornes da Silva; João Vitor Paim da Silva; Lorenzo Barbieri Martinez; Ricardo Zalewsky; Rachel Dias Molina; Denise Cantarelli Machado; Douglas Kazutoshi Sato;
Institution: PUCRS

Abstract: Introduction: Neuromyelitis optic (NMO) is an inflammatory demyelinating disease of the central nervous system (CNS) that affects the spinal cord and optic nerves, compromising motor and visual activity. It is a disease that leaves sequelae, such as blindness and/or crural paraplegia. The identification of a specific and pathogenic anti-aquaporin-4 (IgG) autoantibody has proved to be effective for cases that fall within the classic definition of NMO. Early diagnosis of NMO is extremely important for the prevention of autoimmune lesions in the CNS. Therefore, the purification of human IgG from serum of patients with NMO obtained by plasmapheresis will allow the detection of AQP4 protein by immunoenzyme methods. Objective: Purify the human IgG autoantibody anti-AQP4 to stablish a cell-based assays for clinical diagnosis of NMO. Methodology: Serum from an individual with NMO was obtained through plasmapheresis. Immunoglobulin G was affinity purified (Protein-G Sepharose 4B) followed by dialysis against phosphate buffer (pH 7.2) and concentrated on Amicon Ultra-4. Purified serum was used to label HEK293 cells transfected with cDNA of the target AQP4 antigen. The confirmation of results was performed by the indirect immunofluorescence technique. Results: Preliminary data showed that from 120 mL of blood plasma we obtained 19.6 µg/mL of IgG. The analysis of 167 individuals with suspected NMO showed that 11.9% of the individuals presented antibodies against AQP4 as shown by our cell based assay. Conclusion: It is possible purify human IgG containing anti-AQP4 that can be used to validate cell based tests for neuromyelitis optic diagnosis. Also this antibody will be applied to stablish experimental models of NMO by IgG passive transfer.

Contact: ANA PAULA BORNES DA SILVA - ana.bornes@acad.pucrs.br

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57489

Title: NMOSD AND SJOGREN SYNDROME: A CAUSAL OR SYNCHRONIC ASSOCIATION? A CASE REPORT

Authors: Elisa Matias Vieira de Melo; Bruna Acioly Leão; Paula Virginia Tavares do Nascimento; Diogo Haddad Santos; Herval Ribeiro Soares Neto; Maria Ângela Amaral Lorenti; Sonia Maria Cesar De Azevedo Silva;
Institution: INSTITUTO DE ASSISTÊNCIA MÉDICA AO SERVIDOR PÚBLICO ESTADUAL (IAMSPE)

Abstract: Introduction: Primary Sjogren Syndrome (pSS) has been described with neurological signs as well as its association with Neuromyelitis Optica Spectrum Disorders (NMOSD). Objective: Report the case of a patient with NMOSD diagnosis who presented pSS criteria. Methods: Review of patient medical records and literature review using PUBMED/LILACS. Case Report: AMB, 54 years old, reports loss of dexterity on hands and weakness and incoordination of lower limbs, evolving in 3 months; associated with intense nausea and vomiting. Neurological exam: deep sensibility alterations with pseudoatetosis, severe dysdiadochokinesia, Romberg +, sensitive ataxic gait, making it impossible to walk. CSF: 81 cells, protein of 63mg/dl. MRI: hypersignal on the central region of cervical and thoracic spinal cord extending to the medulla, including the prostrema area. We initiated treatment with pulse corticosteroid therapy followed by plasmapheresis and opted for maintenance therapy with prednisone and azathioprin. After the acute treatment, the patient had moderate improvement of neurological symptoms and CSF showed 4 leukocytes and protein of 28mg/dl. On systemic investigation, FAN reactive (1/640), Anti-SSB and Anti-SSA positive, Schirmer Test positive. At the moment, EDSS 3 for moderate reduction of proprioception and using Rituximab. Conclusion: This case exemplifies the association not well known between NMOSD with other autoimmune diseases like pSS. Thus, it confirms the importance of systemic investigation in a NMOSD case, to identify and treat associated pathologies.

Contact: ELISA MATIAS VIEIRA DE MELO - elisammelo@yahoo.com.br

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57974

Title: PULMONARY TUBERCULOSIS IN AN IMMUNOSUPPRESSED PATIENT DUE USE OF AZATHIOPRINE FOR THE TREATMENT OF SPECTRUM NEUROMYELITIS OPTICA

Authors: FLAVIA ESPER DAHY; MATEUS NADER CUNHA; TATIANA VAZ LEITE; PAULO PEREIRA CHRISTO; ANTONIO PEREIRA GOMES NETO;
Institution: SANTA CASA DE BELO HORIZONTE

Abstract: Introduction: Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis that primarily affects the lungs, with humans being the main reservoir. Objective: To describe a case of TB in immunosuppressed patient due chronic use of azathioprine for treatment of Optic Neuromyelitis Spectrum (NMOSD). Materials and methods: Analysis of medical records and literature review. Case report: I.S.S., 31 years old, female, from Almenara (MG), diagnosis of NMOSD in June 2012, when started the use of azathioprine 150mg/day. In July 2016 she presented a dry cough with no dyspnea associated with daily episodes of fever. Requested some exams. Returns in March 2017, maintaining productive cough, with yellowish secretion, episodes of fever and intense sweating at night, in addition to weight loss; denied inappetence. Chest X-Ray (02/03/17): pulmonary opacity in the right upper lobe (figure 1) and BAAR (+) on 03/22/17. History of contact with a cousin who would have treated TB ten years ago (sic). Discontinued use of azathioprine on 03/15/17 and started tuberculostatic drugs on 04/05/17. Discussion: In Brazil, about 70.000 new cases are reported per year and 4.500 deaths from the disease occur. In 2016, Minas Gerais reported 3.552 new cases, with the Metropolitan Region of Belo Horizonte concentrating approximately one-third of them. Although the risk of illness is greater in the first two years after the first infection, the person may become ill at any time in his life, especially if he is subjected to periods of immunosuppression, such as with the use of azathioprine to treat NMOSD. Conclusion: In patients being treated with immunosuppressants, there is a need for rigorous clinical follow-up to identify signs and symptoms that may indicate the onset of opportunistic infection, such as TB, still so frequent in the country.

Contact: FLAVIA ESPER DAHY - esper.flavia@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57460

Title: RECURRENT OPTIC NEURITIS TRIGGERED BY DENGUE VIRUS INFECTION

Authors: Alice Horta Azevedo de Castro; Mariana Andrade Fontenelle; Juliana Machado Santiago Santos Amaral; Natália Cirino Talim Menezes; Denison Alves Pedrosa; Pâmela Emanuele Lacerda; Rodrigo Gonçalves Kleinpaul Vieira; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background - Recurrent optic neuritis (RON) may either occur in association with MS, NMOSD, anti-MOG antibodies and systemic diseases, or may remain isolated and display negative work-up for serum autoantibodies. On the other hand, infectious and parainfectious optic neuritis (ON) has a characteristic monophasic course. Although monophasic ON is a known complication of dengue fever (DF), RON has not been reported in association with it. Herein we describe a patient who developed five episodes of ON following dengue virus infection. Case Report - A previously healthy 43-YOWF presented with painful visual loss in the left eye (LE). She had a history of serum positive dengue virus infection 15 days prior to the onset of the visual symptoms. Brain MRI showed an extensive contrast enhanced lesion throughout the left optic nerve. The patient was diagnosed as having optic neuritis (ON) and treated with IV methylprednisolone pulses with good response. However, she developed recurring episodes of ON three months later in the LE, 15 and 16 months later in the right eye, and again 28 months later, in the LE. Ophthalmic examination after these five ON attacks revealed visual acuity of 20/25-2 in the right and 20/25 in the LE, decreased color vision bilaterally, and a moderate pallor of both optic discs. Cell based assay for serum aquaporin4-IgG yielded a negative result, but search for serum MOG-antibody was not performed. The patient was put on prednisone and azathioprine and since then she has had no further attacks. Conclusion This patient developed RON after DF. Despite the high prevalence of this infectious disease in tropical and subtropical countries its association with RON has not been described yet. Dengue virus infection may trigger an abnormal immunologic chain which leads to RON.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57543

Title: RECURRING EXCRUCIATING TOOTHACHE AS THE INAUGURAL MANIFESTATION OF NEUROMYELITIS OPTICA SPECTRUM DISORDER

Authors: Letícia Ussem; Natália Cirino Talim Menezes; Juliana Machado Santiago Santos Amaral; Pâmela Emanuele Lacerda; Fernando de Azevedo Lamana; Valbert Florindo Sales; Rodrigo Gonçalves Kleinpaul Vieira; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background - Although brainstem involvement is commonly found at neuromyelitis optica spectrum disorder (NMOSD) onset, symptoms of trigeminal nerve involvement are rare as the opening manifestation of the disease. Trigeminal neuralgia may express itself as an excruciating toothache, simulating an endodontic pathological condition. Herein we report a case of NMOSD patient who presented recurring excruciating atypical toothache with no identified odontic abnormality as the inaugural symptom of the disease. Case report - A 39-year-old white woman presented with a 2-week history of pain and blurred vision in the left eye with no associated symptoms. Past history was negative except for two episodes of excruciating toothache in the region of the upper left first molar, lasting for about a week each, with multiple paroxysms of stabbing pain for seconds to minutes. The first toothache episode preceded visual loss for nine months. Although clinical and radiological examination was unrevealing the patient underwent an endotontic intervention with no pain relief. Three months later she had a second attack of severe painful paroxysms at the same location associated with dysestesia in the left malar region. Again, the dental work-up was unrevealing. Examination showed VA 20/20 OD and 20/30 OS. There were decreased color vision and contrast sensitivity, and an afferent pupillary defect in the left eye. Ophthalmoscopy disclosed a mild left optic disc edema. Serum aquaporin 4-IgG was positive. Serum prolactin was increased. CSF analysis was normal. Brain MRI disclosed a short hypersignal in the orbital segment of the left optic nerve. Conclusion: Our patient presented two episodes of excruciating toothache with no identified dental abnormality months before developing optic neuritis. The second toothache attack was associated with malar dysestesia, suggesting trigeminal involvement. Clinicians must be aware of toothache as the inaugural manifestation of NMOSD.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57941

Title: RITUXIMAB TREATMENT IN ANTIAQP4 POSITIVE PATIENTS WITH A 6-MONTH REINFUSION PROTOCOL

Authors: Pedro Henrique Bruel Torretta; Samira Luíza Apóstolos Pereira; Milena Sales Pitombeira; Frederico Mennucci Haidar Jorge; Douglas Kazutoshi Sato; Dagoberto Callegaro;
Institution: HCFMUSP

Abstract: Introduction: Neuromyelitis optica spectrum disorders (NMOSD) are recurrent and disabling diseases with clinical attacks mainly involving optic nerves and the spinal cord. Azathioprine and mycophenolate mofetil are commonly recommended as first-line treatments, however a substantial percentage of patients do not show response to therapy. Rituximab is a monoclonal antibody directed against CD20 B-lymphocyte surface antigen, and is usually accepted that provides better disease stabilization than other therapies available to date. Although most studies adopt a treatment-to-target approach using peripheral blood B-cell monitoring, there is no defined protocol regarding retreatment strategies. Considering that flow cytometric analyses are not usually available in public health services in developing countries, we report our experience with antiAQP4 positive patients who received rituximab treatment without regular peripheral B-cell monitoring. Methods: We performed a retrospective review of patients with NMOSD and positive AQP4 antibodies who received rituximab for at least six months. Rituximab was administered with an induction treatment of 1000mg infused twice during a 2-week interval. Most patients received a maintenance treatment of 500mg infused twice during a two-week interval every six months regardless of peripheral B-cell monitoring. Results: 13 patients were included (mean age 41, F/M sex ratio 12/1). Mean prerituximab annualized relapse rate (ARR) was 1.79, and mean postrituximab ARR was 0.33 (P=0.0005). Median EDSS score was 7 (range 5-8) before rituximab treatment, and 8 (range 5-8) after rituximab treatment (P=0.75). A marked proportion (78%) of relapses occurred in periods of delayed retreatment. Conclusion: Our 6-month reinfusion protocol is effective in reducing relapse risk, and may be considered as an option when B-cell monitoring is not available. Delayed retreatment should be avoided without regular peripheral B-cell monitoring

Contact: PEDRO HENRIQUE BRUEL TORRETTA - phbt87@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57474

Title: SEROLOGICAL EVALUATION OF ARBOVIRUSES IN PATIENTS WITH DISSEMINATED ACUTE ENCEPHALOMYELITIS AND TRANSVERSE MYELITIS

Authors: Leise Daniele Sckenal Goi; Rachel Dias Molina; Ricardo Zalewsky; Ana Paula Bornes da Silva; Aline de Moura Brasil Matos; Fernanda Martins Maia; Rauli Costa Pires; Danielle Malta Lima; Denise Cantarelli Machado; Douglas Kazutoshi Sato;
Institution: PONTIFÍCIA UNIVERSIDADE CATÓLICA DO RIO GRANDE DO SUL - PUCRS

Abstract: Introduction: Inflammatory diseases of the central nervous system (CNS) such as acute disseminated encephalomyelitis (ADEM) and transverse myelitis may be associated with Zika, Dengue and Chikungunya infections. CNS lesions may cause encephalopathy, convulsions and focal neurologic signs, but it isn't clear if there is a relationship with autoimmunity promoting the development of autoantibodies. The aim was to evaluate the serological profile of arbovirus in patients diagnosed with (ADEM) and transverse myelitis in the region with outbreak of arboviruses infections. Material and Methods: Serum samples from 8 patients, 4 men and 4 women, who were diagnosed with ADEM or transverse myelitis after arbovirus infection were analyzed for autoantibody detection and serology. Autoantibody assays for aquaporin-4 (AQP-4) and MOG were performed using the transfected live cell based assay. The ELISA kits provided by EUROIMMUN were used to detect specific IgM and IgG antibodies against Zika, Dengue and Chikungunya according to the manufacturer's instructions. Results: None patients were presented antibodies AQP-4 and 1 patient was positive for anti-MOG IgG. All patients were positive for Dengue IgG, 3 patients were positive for Zika IgG and 4 patients were positive for Chikungunya IgG and IgM. Discussion and Conclusions: The majority of the patients with CNS lesions associated with arboviruses have been infected with two or more viruses. Therefore, patients with multiple infections may increase the risk of CNS complication.

Contact: LEISE DANIELE SCKENAL GOI - leisegoi@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57850

Title: SERONEGATIVE NEUROMYELITIS OPTICA DISORDER IN A FRAGILE X SYNDROME PRE-MUTATION CARRIER

Authors: Aline de Moura Brasil Matos; Samira Luisa Apostolos Pereira; Ana Beatriz Ayroza Galvao Rodrigues Gomes; Milena Sales Pitombeira; Frederico Mennucci de Haidar Jorge; Maria Fernanda Mendes; Dagoberto Callegaro;
Institution: UNIVERSIDADE DE SÃO PAULO

Abstract: INTRODUCTION Fragile X Syndrome (FXS) is the most common inherited cause of intellectual disability. Although an X-linked genetic disease, women might manifest features depending on the number of CGG trinucleotide repetition within the FMR1 gene. One with 55-200 repetitions has a pre-mutation (FXSPM) – associated with premature ovarian failure and fragile X associated tremor/ataxia syndrome. Although a common mutation, 1:257-300 women, so far no association FXSPM/NMOSD was related. CASE REPORT a 36 years old patient previously with bilateral hearing loss (probably due to repeated otitis) and amenorrhea - both associated with FXSPM - presented progressive numbness in right arm, evolving to the right side of the body in a week in December/2012. Without diagnosis and proper follow up, in august/2013 lost strength in both legs when diagnosed with longitudinal extensive cervical myelitis. No further alterations were found on blood tests or liquor. Anti-NMO was negative by IFI test. On February/2016, she had a bilateral visual blur. MRI showed bilateral optic nerve T1-weighted gadolinium-enhancing posterior lesion reaching optic chiasm. The previous cervical lesion fully recovered. Even serum negative for Anti-NMO, the patient fulfilled criteria to NMOSD, with one recurrence in use of AZA. DISCUSSION NMOSD has a higher female incidence like others autoimmune diseases and higher relapse rate when in fertile aged patients. For that so, researchers all over try to relate hormonal changes with the physiopathology of NMOSD. Patients with FXS or even those with FSXPM due to low CGG repetition show ovarian cycle alterations as premature ovarian insufficiency, menstrual dysfunction and early menopause. This patient might be a link sustaining that other things might influence on NMOSD beyond female hormonal levels.

Contact: ALINE DE MOURA BRASIL MATOS - alinembmatos@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57458

Title: SEROPOSITIVE NEUROMYELITIS OPTICA SPECTRUM DISORDER TRIGGERED BY DENGUE FEVER

Authors: Denison Alves Pedrosa; Juliana Machado Santiago Santos Amaral; Natália Cirino Talim; Pâmela Emanuele Lacerda; Rodrigo Gonçalves Kleinpaul Vieira; Christina de Castro Brommonschenkel; Luiz Guilherme Serrão Gimenez; Eric Levi de Oliveira Lucas; Raquel Gomes Castanheira; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background – Neuromyelitis optica spectrum disorder (NMOSD) has been reported to occur in association with a number of infections. There is just one reported case of NMOSD following dengue fever (DF), but in this patient AQP4-IgG serum status was not informed. We describe two seropositive NMOSD patients whose disease occurred in association with DF. Case 1 - A 45-YOWF developed transient diplopia for one week during DF. Three months later she presented incoercible nausea and vomiting, vertigo, tinnitus and diplopia. She was treated with pulses of IV methylprednisolone with full recovery. New attacks occurred 6 and 12 months and included dysesthesia in the right fingers, ataxia, paraparesis and sphincter disturbance. Visual acuity and fundi were normal. Response to IV steroids treatment was poor and EDSS was 6.5. Brain MRI showed lesions adjacent to the lateral and fourth ventricles, in periaqueductal area, cerebellar peduncles, corpus callosum, and posterior limbs of the internal capsule. Spinal MRI was normal. CSF analysis showed 138 cells/mm3; protein content of 93.9 mg%; IgG index of 0.66. Search for serum AQP4-IgG by CBA yielded a positive result. The patient was put on prednisone and azathioprine and had no further attack. Case 2 – A 40-YOWF observed loss of vision in the left eye which progressed to amaurosis in a few days. She was given IV pulses of methylprednisolone with no recovery. She had a history of DF a month prior to the onset of the visual loss. Examination disclosed visual acuity of 20/20 RE and NPL LE, and severe optic disc pallor in the LE. AQP4-IgG was detected in the serum. Brain MRI showed a high signal intensity with enhancement throughout the left optic nerve. Spinal MRI and CSF analysis were normal. Conclusion – This report shows that seropositive NMOSD may occur in association with dengue virus infection.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57462

Title: TITLE: NEUROMYELITIS OPTICA AND PSEUDOTUMORAL LESION

Authors: Luis Fernando Guimaraes; Marcelo Cagy; Eduardo Moura Assad Monteiro dos Santos;
Institution: HOSPITAL FEDERAL DOS SERVIDORES DO ESTADO

Abstract: Introduction: Neuromyelitis Optica (NMO) is a demyelinating disease with involvement of optic nerves and spinal cord that differs from multiple sclerosis (MS) due to several attributes, such as necrotic, cavitary and longer than three metameres lesions on the spinal cord; rarely showing brain lesions compatible with Barkhof's criteria for MS; unusual expression of oligoclonal bands (OB) and usual pleocitotic cerebrospinal fluid; and the presence of anti-AQP4 (NMO-IgG). Objectives: To describe clinical and magnetic resonance imaging (MRI) NMO's characteristics in a case with pseudotumoral expansive lesion. Methods/Results: Male, 59 years old, presented difficulty to walk two years ago, along with confusion and language impairment. Cranial MRI revealed extensive temporal-parietal-occipital lesion in the left hemisphere, enhanced signal in T2 and FLAIR, with no mass effect, with irregular contrast enhancement of the borders (Figure 1). Stereotaxic biopsy was performed, with nonspecific findings and no neoplastic cells. Observational follow-up was instituted. The patient than presented bilateral central scotoma and spastic paraparesis, and was admitted for further investigation. A new MRI shown extensive signal enhancement in the spinal cord, from upper cervical to lower thoracic regions (Figure 2). Visual evoked potential was bilaterally altered; CSF shown no OB nor abnormal IgG index; serum anti-NMO was negative. The patient was classified within NMO spectrum without AQP4-IgG. High dose IV methylprednisolone was administered, and oral prednisone and azathioprine thereafter, leading to partial improvement of gait and proximal strength. Conclusion: NMO is a syndrome with a large spectrum of presentations, and may show pseudotumoral cranial lesions as its first sign.

Contact: LUIS FERNANDO GUIMARÃES - luis-fernando-guimaraes@hotmail.com

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 58010

Title: TREATMENT OF NEUROMYELITIS OPTICA SPECTRUM DISORDERS WITH METHOTREXATE: EXPERIENCE OF A SPECIALIST CENTER IN BRAZIL

Authors: MILENA SALESPITOMBEIRA; Lais Maria Gomes Ventura; Aline de Moura Brasil Matos; Ana Beatriz Ayroza Galvão Ribeiro; Renata Barbosa Palolio; Samira Pereira Apostolos; Douglas K. Sato; Dagoberto Callegaro;
Institution: HOSPITAL DAS CLÍNICAS USP

Abstract: INTRODUCTION: Neuromyelitis optica spectrum disorders (NMOSD) is a recurrent autoimmune inflammatory disease which lead to early disability mainly caused by severity of relapses. The cornerstone of relapse prevention is immunosuppression and the most commonly prescribed include azathioprine, rituximab and mycophenolate mofetil. Adverse events, failure with first-line medications and financial restrictions may prompt the use of methotrexate (MTX), although there are only few reports so far. OBJECTIVE: To review our experience using MTX as long-term therapy in NMOSD, evaluating effectiveness and tolerability of MTX in patients with NMOSD aquaporin-4 antibody (AQP4-IgG) seropositive. MATERIAL AND METHODS: We retrospectively assessed data of 167 NMOSD AQP4-IgG positive (CBA method) followed at Hospital das Clínicas, University of São Paulo from 2000-2017. Annualised relapse rate (ARR) 12 months before and on treatment with MTX, Expanded Disability Status Scale (EDSS) and adverse events were evaluated. RESULTS: 10 met inclusion criteria, 6 were female and median age of onset was 39y (range 22-61). Median treatment duration was 19 months (range 7-120 months), with a median dose of 10 mg/week (range: 10-20 Mg/week). In 8 patients MTX was initiated following adverse events or failure with azathioprine; in 1 it was introduced due to stability of the disease and prolonged use of azathioprine; in 1 it was the first choice. 80% of the patients were relapse-free and 90% had EDSS stability. 1 patients failed with MTX, switching to rituximab. There was no report of MTX interruption due to adverse events. CONCLUSION: MTX maintained stability in most patients and was well tolerated in our sample. We believe that MTX is a reasonable choice in patients who had adverse events with azathioprine, considering the context of restricted financial resources.

Contact: MILENA SALES PITOMBEIRA - milenapitombeira@yahoo.com.br

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57984

Title: TWO YEARS FOLLOW UP OF PATIENTS WITH MOG ANTIBODY - ASSOCIATED DEMYELINATING DISEASE: ANALYZING THE COURSE OF THE DISEASE.

Authors: Luana Michelli Oliveira de Paula Salles; DAGOBERTO CALLEGARO; DOUGLAS K SATO; SAMIRA LUISA APOSTOLOS PEREIRA; FREDERICO MH JORGE; RENATA F SIMM;
Institution:

Abstract: Background: Antibodies to myelin-oligodendrocyte glycoprotein (MOG) have been associated with central nervous system demyelinating disorders. Isolated or recurrent ON is the most common phenotype for MOG-antibody positive cases. Recurrent patients may have myelitis or brainstem lesions during the disease course. Objective: To analyze the course of the disease in adult patients with MOG antibody-associated with demyelinating disease . Methods: We included 30 positive patients for MOG antibody diagnosed with phenotype NMOSD/NMO followed at University of Sao Paulo. The sera were tested using cell-based assay with live transfected cells. We followed these patients for two years and the past history was also collected. Results: Among the total of 30 patients, 19 patients had relapses and 11 had a single attack. In relapsing cases, the median total time of disease was 10.9 years (range 2.5 – 24 years) and the median time for the second attack was 1 year (range 0.16-14). The median ARR among relapsing cases was 0.36 (range 0.1-1). 17 patients were on long term imunossupression, 78% (15/19) were on azatioprine, 21 % (4/19) on methotrexate (MTX), 5 % (1/19) on Rituximab and no attacks were observed during the follow up. Two patients with recurrent disease and without imunossupression had attacks. 16 patients had no relapsing with first line therapy. One patient developed corticoid dependence and MTX was shift to Rituximab, resulting in a successful corticoid withdrawal. Thus far, patients with single attack has a median of 3 years since the first episode (range 2- 9.6 years). In these patients, infection, vaccine or delivery were not a trigger for an attack. During the follow up none of the patients with single attack was on imunossupression. 15 out of 19 relapsing cases had a second title of MOG antibody, from these only three remaining positive. In patients with single attack 7 out of 11 had also a second title of MOG antibody, from them, 2 remaining positive. Conclusion: The rate of relapses in patients with MOG antibody seems to be low and well controlled with firts line imunossupression treatment. The time for the second attack is quite variable and it can take as long as 14 years. In this way we consider not to treat anti-MOG positive patients with long term imunossupression at the time of the firts attack, but begining the treatment since a second attack develop. Further follow up of the title of MOG antibody may be able to help answering which patients have the potencial for a second attack.

Contact: LUANA MICHELE OLIVEIRA - luanaoliveira1985@yahoo.com.br;neurologia.luanasalles@yahoo.com.br;

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57996

Title: VISCERAL LEISHMANIASIS INFECTION IN A NEUROMYELITIS OPTICA SPECTRUM DISORDER PATIENT TREATED WITH AZATHIOPRINE

Authors: Mateus Nader Cunha; Flávia Esper Dahy; Tatiana Vaz Leite; Paulo Pereira Christo; Antônio Pereira Gomes Neto;
Institution: SANTA CASA DE BELO HORIZONTE

Abstract: Introduction: Neuromyelitis Optica Spectrum Disorder (NMOSD) is an autoimmune disease of the nervous system characterized by recurrent inflammation, with a predilection for the optic nerves and spinal cord (1). Azathioprine is one of the treatments available for the prevention of relapse (2). Objective: Describe the case of infection by visceral leishmaniasis (VL) secondary to chronic immunosuppression in NMOSD treatment. Materials and Methods: Medical record analysis and literature review. Case Report: M.M.F.C., 57 years, female, residence of Ribeirão das Neves/MG. In March 2015, she presented paresthesia and weakness in lower limbs, with progressive worsening. Magnetic Resonance Imaging showed longitudinally extensive transverse myelitis. The patient was treated with methylprednisolone IV, without complete improvement. In august 2015, she presented worsening of the deficit, treated with corticoid, without improvement. Antibody AQP4 (+) in september 2015, setting the diagnosis of NMOSD and initiated the use of azathioprine (2mg/kg/day). In january 2017, the patient presented malaise, asthenia and weight loss (7kg). Blood count: pancytopenia. Bone marrow biopsy: presence of leishmaniasis. She was treated with liposomal amphotericin. Immediately stopped the azathioprine. In the following months, she developed two severe episodes of sepsis. Discussion: VL is an opportunistic disease whose the vast majority of cases are recorded in the Indian subcontinent, East Africa and northeastern Brazil (3). Treatment commonly adopted for autoimmune diseases including steroids, methotrexate, azathioprine and cyclosporine are associate to an increase of the risk of VL (3,4). Conclusions: Patients with autoimmune diseases, such as NMOSD, on immunosuppressive therapy, need regular monitoring and medical surveillance because the risk of opportunistic infections. References: 1. Wingerchuk, DM et al. International consensus diagnostic criteria for neuromyelitis optica spectrum disorders. Neurology. 2015 Jul 14; 85(2): 177–189. 2. Bichuetti, DB et al. Neuromyelitis Optica Treatment. Arch. Neurol. V. 67, N. 9, 2010. 3. Pagliano, P et al. Visceral leishmaniasis in immunocompromised: diagnostic and therapeutic approach and evaluation of the recently released IDSA guidelines. Le Infezioni in Medicina, n. 4, 265-271, 2016. 4. Fletcher, K et al. Visceral Leishmaniasis and Immunocompromise as a Risk Factor for the Development of Visceral Leishmaniasis: A Changing Pattern at The Hospital for Tropical Diseases, London. PLOS ONE DOI:10.1371/journal.pone.0121418. April 1, 2015

Contact: MATEUS NADER CUNHA - mateusnader@yahoo.com.br

Modality: Poster Presentation

Theme: NMO, ADEM and CIS

Code: 57808

Title: VISION-RELATED QUALITY OF LIFE IN MULTIPLE SCLEROSIS AND NEUROMYELITIS OPTICA. A COMPARATIVE STUDY

Authors: Alice Horta Azevedo de Castro; Mariana Andrade Fontenelle; Hugo Brito de Carvalho; Natália Cirino Talim Menezes; Lívia Edwiges Cirino Talim Ferreira; Juliana Machado Santiago Santos Amaral; Pâmela Emanuele Lacerda; Rodrigo Gonçalves Kleinpaul Vieira; Marco Aurélio Lana Peixoto;
Institution:

Abstract: Background - Visual function is frequently affected in both multiple sclerosis (MS) and neuromyelitis optica spectrum disorders (NMOSD). The 25-item National Eye Institute Visual Function Questionnaire (NEI-VFQ-25) is a reliable questionnaire to evaluate vision-related quality of life in chronic eye conditions or low vision resulting from different causes. We determined the scores of the NEI-VFQ-25 in samples of patients with MS and with NMOSD to compare these conditions regarding their damage to the visual function and how they impact the vision-related quality of life. Methods - The Brazilian Portuguese-translated and validated NEIVFQ-25 was used in groups of patients with MS and NMOSD. All patients had an optic neuritis (ON) attack which had occurred at least three months prior to evaluation. Results - There were 39 patients in the MS group (26 women and 13 men), and 56 patients (51 women and 5 men) in the NMOSD group. The median NEI-VFQ-25 scores were 85,62 in the MS group and 74,64 in the NMOSD group ($p<0.001$). Analysis of the VFQ-25 Sub-Scales showed statistically significant differences in General Health, General Vision, Ocular Pain, Near Activities, Distance Activities, Social Functioning, Mental Health, Role Difficulties, Dependency, Color Vision and Peripheral Vision subscales were higher in the MS group than in the NMOSD group ($p <0.05$). The most striking difference in subscales scores between MS and NMO groups was found in the General Health and Vision subscales (p 0.000077 and 0.00058), whereas the smallest difference was observed in the Driving subscale scores (p 0.057). Conclusion – Although both MS and NMOSD frequently involve the optic nerves, the vision-related quality of life of NMOSD patients is much more severely affected in NMOSD patients than in MS patients suggesting a more severe damage to visual function in NMOSD than in MS.

Contact: MARCO A. LANA-PEIXOTO - marco.lanapeixoto@gmail.com