

Sarajevo University. Care for patients at the Neurology Clinic of Clinical Center Sarajevo is partly of secondary, and partly on tertiary level of health care. Tertiary level of care is for the patients from 4 Cantons.

Goal: To provide a review of the population suffering from multiple sclerosis treated during 2006 at the Neurology Clinic of Clinical Center of Sarajevo University from the aspect of gender differences, age, type of disease, average duration of hospitalization, precipitating factors for the disease or relapsing, and noticed mental disturbances. Particular emphasis is given to the treatment with immune system modulators.

Participants, Materials/Methods: In this study we used a specially designed questionnaire, and history of illness of patients who were diagnosed as multiple sclerosis, treated at the Neurology Clinic from January 1st – December 31st 2006.

Results: The number of patients with MS was 71 (61.87% of female gender) aged from 40–49 years (43.66%). The average lifetime with respect to the onset of the first symptoms was 33.01 ± 8.3 years. Hospital stay lasted on average of 19.5 days. Precipitating factor in 29.57% of cases with deterioration or disease is the infection and in 16.9% the stress. 26.76% of patients had a RR type of illness. Therapy with interferon was in 4.48% of patients. Therapy with high doses of methylprednisolone received 66.7% of patients. Depression disorder was present in 32.9% of patients, and cognitive dysfunction in 9.86%. The average EDSS score was 4.5. Relapsing rate was 4.63 per patient.

Conclusions: Based on our research we can conclude that the overall mortality of clinical patients, MS was responsible for 2.84% of all treated. Average patient's age was 33.01 years with a statistically significant more frequent disease in female population. Average EDSS was 4.5, relapsing rate 4.63, the possibility for immune modulating therapy 4.48%. In the next period is imperative to create a unified register of patients in order to conduct their treatment according to therapeutic guidelines.

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Differential down-regulation of soluble adhesion molecules during Natalizumab treatment

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Introduction/Objectives: Natalizumab (Tysabri) is a monoclonal antibody used in the treatment of multiple sclerosis (MS). This humanized antibody binds directly at the alpha 4-integrin subunit of the adhesion molecule (AM) very late activation antigen-4 (VLA-4) and thus leads to an inhibition of immune cell extravasation across the blood brain barrier. This consecutively results in a reduced inflammation of the central nervous system. Our objective was to study the effect of Natalizumab on soluble cell AMs in peripheral blood of patients before and 3 months after onset of Natalizumab treatment.

Participants, Materials/Methods: We determined serum concentration levels of four different AMs (soluble intercellular adhesion molecule-1, -2, -3 [sICAM-1, -2, -3] and vascular cell adhesion molecule-1 [sVCAM-1]) by using fluorescent bead immunoassay and enzyme linked immunosorbent assay (ELISA). Blood was sampled from 15 MS patients before and 3 months after onset of Natalizumab treatment.

Results: A significant decrease was found in all patients for the median of sICAM-3 serum concentration levels (before therapy: 100 ng/ml; after 3 months: 61 ng/ml; $P < 0.001$) and sVCAM-1

(before therapy: 580 ng/ml; after 3 months: 216 ng/ml; $P < 0.001$) levels 3 months after onset of Natalizumab treatment. In contrast, serum levels of soluble ICAM-1 (before therapy: 452 ng/ml; after 3 months: 479 ng/ml) and ICAM-2 (before therapy: 263 U/ml; after 3 months: 242 U/ml) remained unchanged.

Conclusions: We were able to show a differential effect after 3 months of natalizumab treatment with decreased serum levels in all investigated MS patients in two of the four investigated AMs (sICAM-3 and sVCAM-1).

VCAM-1 is the ligand of VLA-4. We therefore conclude that the decrease of sVCAM-1 might be a result of natalizumab mediated blocking of VLA-4. Alternatively, the decrease of sVCAM-1 in conjunction with the decrease of sICAM-3 might also be due to the anti-inflammatory effects of Natalizumab.

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Epidemiology of multiple sclerosis in Tuzla canton, Bosnia and Herzegovina

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Objective: To determine the incidence and prevalence of multiple sclerosis in the Tuzla canton, Bosnia and Herzegovina.

Patients and methods: The area of the Tuzla canton is 2649 km² and consists of 13 municipalities. After the war (1992–1995), there was no population census in Bosnia and Herzegovina. According to the report from Institute for statistics of federation Bosnia and Herzegovina in 2005, the Tuzla canton had an estimated population of 502 862 residents. Our Department of Neurology is the only one capable to diagnose and treat people suffering from multiple sclerosis in the canton. We have calculated the incidence and prevalence of Multiple sclerosis by analysing existing medical documentation (history of illness and hospital protocols).

Results: In the Tuzla canton total number of people suffering from Multiple Sclerosis (on 31.12.2008.) is 140, average age of 40.37 years (\pm SD 10.65). Average age of patients was 34.69 (\pm SD 10.54) years when the illness was diagnosed. The youngest patient was 12 year old, and the oldest 73 years. Diseases were twice more frequent in women than in men (94; 67.1%/46; 32.9%). The prevalence was 27.84 patients per 100 000 population. The average incidence for the 10-year period (1999–2009) was 2.38/100 000. The lowest incidence was 0.59/100 000 population (1999), and the highest 4.78/100 000 population (2007).

Conclusion: The results show that the Tuzla canton belong to the area with a middle prevalence of multiple sclerosis (upper limit). Moreover, the incidence of illness has the tendency to increase in the last ten years.

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Brain white matter abnormalities in patients with Myotonic dystrophy type 1: is this multiple sclerosis?

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Introduction/Objectives: Myotonic dystrophy type 1 (DM1) is an autosomal dominant multisystemic disorder that affects skeletal and smooth muscle as well as the eye, heart, endocrine system, and central

nervous system (CNS), caused by CTG repeat expansion on the chromosome 19q. In some patients CNS white matter abnormalities are very extensive, with clinical symptoms including mental changes, hypersomnia, stroke-like episodes and seizures.

Participants, Materials/Methods: We report two unrelated patients with DM1.

Results: One patient, 50-year-old woman, at the time of clinical examination manifested mild temporal and bulbar muscle weakness, slight flexor neck, distal limb weakness, mild intermittent myotonia. She have bilateral cataract, sterility, without cardiac pathology. Elevated CK (274 U/l). Generalized myotonia and myopathic changes in EMG. Skeletal muscle biopsy compatible with myotonic dystrophy. Cerebrospinal fluid (CSF) was normal without immunological activity. The other patient was 37-year-old man. Clinical examination revealed severe temporal, ocular and bulbar muscle weakness, anterior neck and distal limb muscle weakness, mild myotonia as well as the frontal balding, sterility, bilateral cataract, severe myocardopathy, elevated CK (280 U/l), generalized myotonia and myopathic changes in EMG, muscle biopsy compatible with DM1. CSF was normal.

MRI of the brain in two patients: bilateral, multifocal, subcortical white matter changes, paraventricular and in brain stem, hyperintense on T2-weighted and proton density-weighted images. MRI of cervical spinal cord and MRI cerebral angiography were normal.

Conclusions: We found definite MRI abnormalities in 2 patients with DM1. The morphology underlying this leucoencephalopathy is unknown. Examination of the CSF gave no evidence of an inflammatory process, excluding multiple sclerosis. These changes are probably with vascular etiology, and they are part from wide spectrum of multisystemic disorders in DM1.

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Pain syndromes in patients with multiple sclerosis

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Multiple sclerosis (MS) is a disease of the central nervous system (CNS), beginning most often in late adolescence and early adult life and expressing itself by recurrent attacks of spinal cord, brainstem, cerebellar, optic nerve and cerebral dysfunction, the result of foci of destruction of myelinated fibers.

In this retrospective study we evaluated 280 patients who have been hospitalised at Department of neurology in last 3 years.

According to the results of our study one hundred and four patients (60%) had either an acute or chronic pain syndrome at some time during their disease. Six patients (2.1%) with acute pain syndromes had episodes of paroxysmal pain attacks in distribution of trigeminal nerve.

Chronic pain syndromes, present for a mean duration of 4.2 years occurred in 154 patients (55%) and included headache (38%), cervical and lumbosacral syndrome (58%) and painful leg spasms in 4% of patients.

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Gender differences in quality of life in multiple sclerosis patients

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Introduction/Objectives: Multiple sclerosis is a chronic progressive disease that can cause a variety of symptoms and can have many

adverse effects on the patient's lives. The objective of this study was to investigate gender differences in quality of life in multiple sclerosis patients.

Participants, Materials/Methods: 100 MS patients treated at the Neurology Clinic in Sarajevo were involved in this study. Quality of life was measured by using specific MSQOL-54 questionnaire, after the evaluation of internal consistency of adapted Bosnian version. Mann-Whitney and Kruskal-Wallis test were used for the comparisons, while the linear regression analyses were performed to identify significant predictors from sociodemographic and clinical characteristics in predicting MSQOL-54 physical and mental composite scores.

Results: Sixty-nine percentage of patients in the study was female and 31% were male. The mean age of female patients was 40.73 and male patients 37.35. The mean EDSS score of female patients was 3.63 and male patients was 3.58. Female patients had lower physical health composite scores 45.64(36.17–66.45) than male patients 48.57(28.09–70.20), but without statistically significant difference. Mental health composite score was also lower in female patients 55.14(41.85–73.46) than male patients 56.32(39.66–73.97), without statistically significant difference. Significant gender difference was found only on the pain scale of quality of life questionnaire. ON pain scale female patients had significant lower scores (55.00(39.17–76.67) than male patients 76.67(46.67–100.00), $P < 0.05$. Gender differences didn't have significant role in predicting quality of life in our study (linear multivariate regression analyses).

Conclusions: We didn't find gender difference to be the predictive factor of quality of life in MS patients. Although, female patients had predominantly lower QOL scores than male patients. Statistically significant difference was in pain scale which emphasise importance of treating pain in MS female patients.

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Impact of environmental factors in exacerbation of patients with MS in Kosovo

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Introduction/Objectives: In the literature are lot of study where is mentioned the exacerbation of Multiple Sclerosis according to the group-ages, residence, seasons and the role of these factors in exacerbation. In this study the objective is to research the influence of those factors and to compare the results from the research with information from the literature.

Participants, Materials/Methods: We used the descriptive methods of retrospective research. The sources of information were patients admitted in the Neurological Clinic of Medical Faculty in Pristine University during the period of time 1992–2001. In the research are included 92 patients, 63 women and 29 men. It has been assigned correlation coefficient, Student's *t*-test. Verification of test is done with grade of credibility for $P < 0.05$ for grade of mistake of 95% and for grade of credibility for $P > 0.01$ and grade of mistake of 99.7%.

Results: From the cases included in the study in 35% the occurrence of the disease is between ages 20–29, incidence of MS in 33% of the cases is shown between age of 30–39 with mean age of 31 year old. As about correlation of cronobiological exacerbation in the relapse remitting forms of MS summer if the period of the year the exacerbations are most frequent (55.4% of the patients). And winter is most calm season with 8.7% of exacerbation in our study.