younger age in MS. The whole brain volume and the grey matter volume showed significant correlations with present EDSS, but these three variables were similarly correlated with the present age and the disease duration. The FLAIR lesion volume did not correlate with the present EDSS.

Conclusion: We observed accelerated brain atrophy in Japanese MS patients, though the estimated atrophy rate was slower than that in Caucasian patients. Japanese MS patients may require early treatment to prevent brain atrophy, as in Caucasian patients.

doi:10.1016/j.jns.2017.08.673

A. Alshahrani, M. Alqahtani, R. Alamri, Department of Internal Medicine, Internal Medicine, Gaziantep, Turkey; cGaziantep University Medical Faculty- Department of Biochemistry, Gaziantep, Turkey; bDr Ersin Asian Government Hospital- Neurology Clinic- Gaziantep, Neurology, Gaziantep, Turkey; cGaziantep University Medical Faculty- Department of Biochemistry, Gaziantep, Turkey; dGaziantep University Medical Faculty- Department of Internal Medicine, Internal Medicine, Gaziantep, Turkey

Background: Fatigue is a common symptom of Multiple Sclerosis (MS) but its exact mechanism remains poorly understood. Studies that have explored the relationship between fatigue and serum IL-1β, IL-35 and IL-2 levels were significantly higher among MS patients. Elevated levels of IL-35 and IL-2 suggest that these cytokines are needed.

Conclusion: Recurrent optic neuritis neuritis (rON) is an autoimmune inflammatory condition of unknown cause. Intravenous immunoglobulin (IVlg) treatment is used for many autoimmune disorders; however, we do not have any information about its effect in rON, other than case reports.

Objective: We aimed to evaluate our patients with rON who were treated with IVlg.

Patients and Methods/Material and Methods: Data from all our patients with rON with or without anti aquaporin4 (AQP4) seropositivity, seen between April 2011 and October 2015, who received IVlg treatment were retrospectively evaluated.

Results: Nine patients (all female) with rON had received IVlg. These patients were aged between 34 and 65 years, and had started receiving monthly IVlg from 6 to 58 months after onset of disease. In three out of nine rON patients serum AQP4 antibody were positive. Under current treatments the patients had continued to have attacks, therefore monthly IVlg was given in addition to the existing immunosuppressant drug. The follow up duration was between 6 to 31 months. Three patients, each suffered one relapse under IVlg treatment. Mean number of relapses in the year prior to treatment was 1.4 ± 0.72, whereas it was 0.3 ± 0.5 during the year after IVlg therapy. During follow-up with IVlg administration only one patient had fever and no other adverse events were reported.

Conclusion: Monthly IVlg is well-tolerated and safe and it seems to be effective in rON as an add on treatment. However, since our study is a retrospective case series, future randomized controlled trials with IVlg are needed.

doi:10.1016/j.jns.2017.08.675

A. Alhazzani, A. Alshbairan, M. Alqahtani, R. Alamri, R. Alqahtani, M. Alqahtani, ⋆King Khalid University, Neurology - College of Medicine, Abha, Saudi Arabia; ⋆King Abdulaziz Medical City- National Guard Health Affairs, Department of Medicine- Neurology Section, Riyadh, Saudi Arabia; ⋆Prince Sultan Military Medical City, Neurology, Riyadh, Saudi Arabia

Background: Insomnia is a common problem that affects approximately 50% of patients with Multiple Sclerosis (MS). In general, persons with insomnia are at a higher risk of developing depression and vice versa. No studies about insomnia in non depressed MS were conducted in Saudi Arabia.

Objective: To assess the prevalence of insomnia among non-depressed MS patients.

Patients and Methods/Material and Methods: Only MS patients who scored 4 or less for depression based on the Patient Health Questionnaire-9 (PHQ-9) were included. The data collected include a set of sociodemographic and relevant clinical variables. Insomnia was assessed using Insomnia Severity Index (ISI) while Patient-Determined Disease Steps (PDDS) questionnaire used to measure disability.

Results: In 112 non-depressed MS patients who were investigated, 72 (64.3%) were female, 62 (55.4%) were married. The mean age was 32.6 ± 8.9 years. As for educational level, 64 (57.1%) had a bachelor’s degree. The mean age at disease onset was 26 ± 7.6 years. The mean duration of illness was 1.5 years. In total, 87.5% of patients were classified as non-
insomnia and 12.5% had insomnia symptoms. No statistical significance was found between the mean PDSS of insomnia (mean = 1.57; SD = 1.09) and non-insomnia patients (mean = 1.67; SD = 1.33). A significant statistical relation was found for education level (P = 0.005) and use of antidepressant drugs (P = 0.008).

**Conclusion:** This study demonstrated that there is a low prevalence of insomnia in non-depressed MS patient in Saudi Arabia. Insomnia was associated with higher education level but not with degree of disability, duration of illness or type of disease modifying agent used. More research is needed.

doi:10.1016/j.jns.2017.08.676

649
WCN17-2240
SHIFT 1 - MS & DEMYELINATING DISEASES
Treatment adherence and satisfaction among multiple sclerosis patients, cross sectional study, Saudi Arabia

A.A. Alhazzani\(^1\)*, M. Alqahtani\(^1\), S. Alkhashrami\(^1\), N. Alamri\(^1\), M. Alahmar\(^1\), L. Sarhan\(^1\), M. Asiri\(^1\), A. Alfaifi\(^2\). \(^1\)King Khalid University, Neurology - College of Medicine, Abha, Saudi Arabia; \(^2\)King Abdulaziz Medical City- National Guard Health Affairs, Department of Medicine-Neurology Section, Riyadh, Saudi Arabia

**Background:** Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease of the central nervous system. Adherence to disease modifying therapy (DMT) is essential to achieve clinical benefit.

**Objective:** To assess adherence to treatment and to evaluate the factors that can affect compliance.

**Patients and Methods/Material and Methods:** A cross-sectional study involved multiple sclerosis patients from different regions in Saudi. The patients were invited to answer a questionnaire regarding their MS treatment; and the common Morisky Medication Adherence Scale (MMAS-8) was used to assess patient adherence. Determined Disease Steps (PDDS) was used to measure disability. Data were analyzed using descriptive statistics.

**Results:** Of the 598 MS patients studied, 384 (64.2%) were female. The mean score for males was higher than for females in all SF-36 QoL subscales. The mean age was 32.4 years (± 8.4 years). The mean age at disease onset was 26.9 years (SD = 7.6). The mean duration of illness was 6.5 years; the mean number of admissions was 1.4 (SD = 1.7). Patients had the lowest scores in role-motion/emotional scale (mean = 42.6, SD = 43.3). The PDDS was negatively correlated with all SF-36 QoL subscales. SF-36 QoL for MS patients differ significantly through demographic characteristics at a level of significance of 0.05.

**Conclusion:** This study found that MS patients have a low QoL score which correlated with their disabilities, therefore, QoL measures should be used to guide clinical care and to evaluate treatment interventions. Furthermore, there is an urgent need to develop a national registry and encourage future research to improve the care provided.

doi:10.1016/j.jns.2017.08.678

651
WCN17-2831
SHIFT 1 - MS & DEMYELINATING DISEASES
Association of headache prevalence and severity with interferon beta treatment of multiple sclerosis

I. Alimehmeti\(^1\), S. Grabovab\(^1\), I. Zeki\(^1\), O. Çibukub\(^1\), L. Lala\(^1\), I. Buxhelaj\(^1\), R. Hafiz\(^1\), S. Kellisi\(^1\), J. Kruij\(^1\). \(^1\)University of Medicine, Department of Family and Occupational Health, Tirana, Albania; \(^2\)University Hospital Center “Mother Theresa”, Service of Neurology, Tirana, Albania; \(^3\)University of Medicine, Department of Pharmacy, Tirana, Albania; \(^4\)University of Medicine, Department of Neurosciences, Tirana, Albania

**Background:** Interferon beta (IFN-β) is commonly employed in treating effectively remitting-relapsing multiple sclerosis (RRMS) and may be accompanied by several side effects, including headache. However, severity of headache has been less intensively researched.

**Objective:** Our aim was to assess the association of headache prevalence and severity of IFN-β treatment in patients with RRMS.

**Patients and Methods/Material and Methods:** In March-June 2016, we enrolled all patients with RRMS treated with IFN-β for at least three months. Two control groups were employed: one of RRMS patients IFN-β-naïve and the second of healthy controls age and gender matched. Patients’ data were recovered from the European Database of Multiple Sclerosis (EDMUS) of the Neurology Service, while headache severity was assessed employing the Migraine Disability Assessment (MIDAS) score.

**Results:** In total, 52 RRMS patients under IFN-β (50.6% males, aged 35.3 ± 11.0), 37 RRMS IFN-β-naïve patients (54.1% males, aged 38.4 ± 9.8) and 208 healthy controls (30% males, aged 35.3 ± 11.1) were studied.

doi:10.1016/j.jns.2017.08.677