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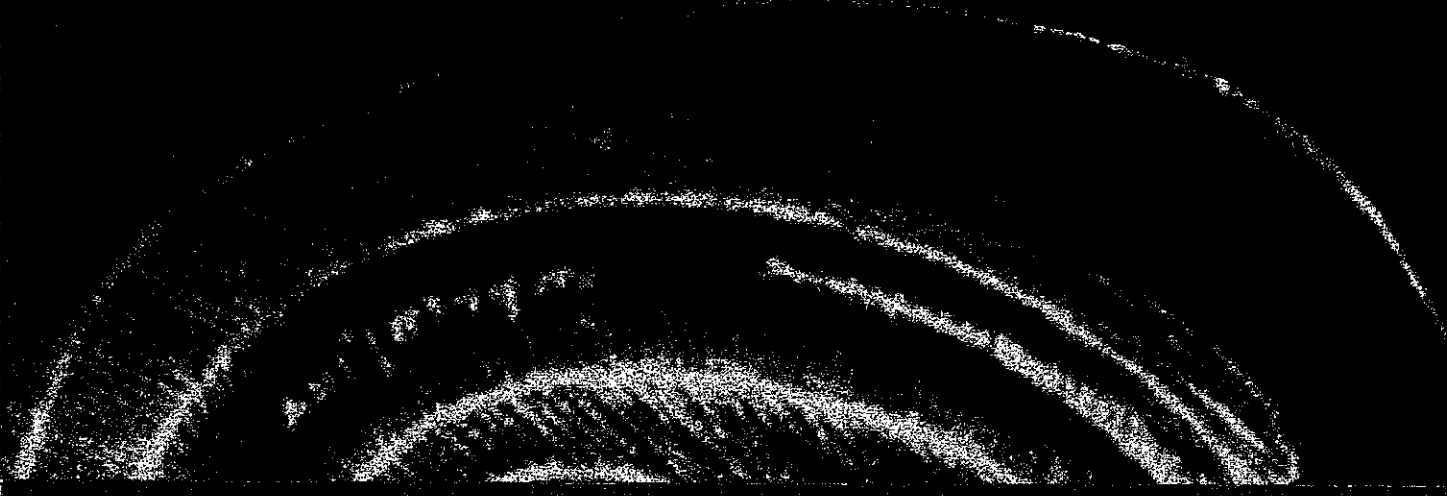
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ABSTRACTS

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MULTIPLE SCLEROSIS 1

PREDICTORS OF DEFINITE MULTIPLE SCLEROSIS IN PATIENTS WITH A PEDIATRIC ONSET FIRST DEMYELINATING CLINICAL ATTACK

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Background: Pediatric onset occurs in nearly 5% of Multiple Sclerosis (MS) patients. Due to its rare incidence limited epidemiological data are available. Objectives: to evaluate the effect of age, sex and onset symptoms on the risk of the second clinical attack in a cohort of pediatric, clinically isolated syndrome suggestive of MS (pCIS) patients.

Methods: Demographic and clinical data of a cohort of patients with pCIS and onset <= 15 years were extracted from the Italian iMedWeb registry. Patients were stratified in two groups by age at onset: patients with very early onset (age < 12 years) and patients with early onset (age 12-15 years). Time to second clinical attack was calculated for each group. Proportions of patients with different onset symptom(s) (optic, spinal, supratentorial, brainstem/cerebellum and multifocal) were calculated and compared between the two groups (chi-square test). A Cox-model adjusted for decade of birth, sex and onset symptom(s) was performed to evaluate the risk of the second clinical attack during the follow-up.

Results: A total of 810 of pCIS patients with onset before 15 years was extracted. Time to second clinical attack was longer (6.02±5.97 years) in pCIS with "very early onset" than in pCIS patients with "early onset" (5.44±5.74 years), although not significant (p=NS). Brainstem onset was found to be more frequent in patients with "very early onset" in comparison to patients with "early onset" (39.5 vs 28.9%; p=0.006), whereas supratentorial onset was more frequent in the second group (40.3 vs30.8; p=0.017). A higher risk of second clinical attack during the follow-up was found in patients with "early onset" (HR 1.33; 95% CI: 1.11-1.60; p=0.0026).

Conclusions: The results indicate that onset symptoms in pCIS differ between adolescents and in children and that the risk of a second clinical attack is significantly higher in adolescents.
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THE EFFECTS OF NATALIZUMAB AND FINGOLIMOD ON CLINICAL, NEUROPSYCHOLOGICAL AND MRI MEASURES IN RELAPSING REMITTING MULTIPLE SCLEROSIS: A ONE-YEAR COMPARATIVE STUDY

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Objectives: Natalizumab and fingolimod reduce clinical and magnetic resonance imaging (MRI) disease activity in patients with relapsing remitting multiple sclerosis (RRMS). Aim of this study was to compare the effects of natalizumab and fingolimod on clinical, neuropsychological (including fatigue and depression) and MRI measures in RRMS patients after one year of treatment.

Methods: Forty-three RRMS patients starting treatment with natalizumab (n=19) or fingolimod (n=24) underwent 3 Tesla brain MRI scans (including dual-echo, double inversion recovery and 3D T1-weighted images) and clinical and neuropsychological evaluation (EDSS, Modified Fatigue Impact scale [MFIS], Montgomery-Asberg Depression Rating Scale [MADRS] and RAO's battery) at baseline (T0), month 6 (M6) and year 1 (Y1). T2, T1 and cortical lesion volumes (LV), whole brain, white matter (WM), gray matter (GM) and deep GM volumes were measured. Between- and within-group analyses were performed using two- and paired-sample t tests, and generalized linear models.

Results: At T0, the two groups were matched for all the clinical, neuropsychological and MRI variables. At Y1, disease activity (relapse rate and new T2 lesions) and neuropsychological changes were similar between the two groups, whereas EDSS decreased significantly in fingolimod patients (p=0.006). In natalizumab patients, T2, T1 and cortical LV remained stable at Y1, while fingolimod patients showed a significant increase of T2 (p=0.0003 vs natalizumab) and T1 (p=0.05 vs natalizumab) LV. At Y1, WMV decreased significantly in both groups. Fingolimod patients also experienced significant thalamic (p=0.001) and caudate nuclei (p=0.03) atrophy. At Y1, MFIS psychosocial (MFISps) subscore improved in natalizumab (p=0.02) and worsened in fingolimod (p=0.02) patients (treatment x time interaction: p=0.001). Similarly, MADRS scores were significant lower in natalizumab vs fingolimod patients at Y1 (p=0.04). In fingolimod patients, 1-year changes of caudate (β=0.028; R2=0.25, p=0.01) and thalamic (β=0.036; R2=0.22, p=0.02) volumes predicted Y1 MADRS, whereas 1-year change of caudate volume (β=0.006; R2=0.36, p=0.001) predicted Y1 MFISps subscore.

Conclusions: This study confirms the effects of natalizumab and fingolimod on disease activity in RRMS patients. Compared to fingolimod, natalizumab is likely to have a more significant effect on several neuropsychological aspects including, emotional and behavioural func-