5 (p=0.004) years, patients in the early treatment group performed better in the PASAT. **Conclusions**: The 5-year results of the BENEFIT study provide further evidence supporting early initiation of treatment with IFNB-1b in patients with a first event suggestive of MS. **Supported by**: Bayer Schering Pharma AG, Berlin, Germany.

P902

Randomized, prospective, rater-blinded, four-year, pilot study to compare the effect of daily versus every-other-day glatiramer acetate 20 mg subcutaneous injections in relapsing-remitting multiple sclerosis

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Background: The recommended dose of GA in RRMS is 20 mg subcutaneous (SC) daily (QD) although the optimal dose remains unknown. There is considerable interest in alternate dosing regimens of GA in RRMS. Daily SC injectable therapy can be challenging for long-term patient compliance. **Objective**: We conducted a pilot trial to compare the effect of GA 20 mg SC daily versus every other day (QOD) in RRMS. The primary endpoint was based on a composite of clinical, MRI, and immunologic outcomes. **Methods**: Treatment naïve RRMS patients were randomized to GA 20 mg SC QD or QOD and followed prospectively for 2 years. After 2 years, patients in each group were given the option to continue or switch to the other group, and followed for an additional 2 years. EDSS was recorded every 6 months by a rater blinded to dosing allocation. Brain MRI scans were obtained at baseline, and years 2 and 4. Blood for immunologic testing was obtained at baseline and multiple time points after randomization. **Results**: 30 patients were randomized to GA 20 mg SC given QD or QOD. Both groups were well-matched for age, disease duration, EDSS, relapse rate, T2W and gadolinium (Gd) enhancing lesions. After 2 years, there were no differences in the relapse rate, disease progression, Change in T2W lesion volume, or Gd enhancing lesions between the two groups. In vitro proliferation of GA-responsive T-cells and Th1/Th2 cytokine expression did not differ between the two groups at any time point after randomization. After 2 years, all patients in the QD group opted to switch to QOD. After a total of 4 years of prospective follow-up, there was no difference between the QD-QOD cross over group and the always QOD group. Additional data on imaging and immunologic outcomes will be presented. **Conclusions**: This pilot study suggests that GA 20 mg SC administered QD or QOD may be equally effective in RRMS. This may have implications for the long-term use of GA. However, large multi-center studies are warranted to confirm our findings and to identify the optimal dose of GA in RRMS.

Epidemiology/Genetics

P903

The expanding genetic overlap between multiple sclerosis and type 1 diabetes

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Background: A familial clustering of autoimmune disease is well recognised and suggests that some susceptibility genes may predispose to autoimmunity in general whereas other genes lead to specific disease. **Objective**: To investigate if variants of established relevance in type 1 diabetes might also be relevant in multiple sclerosis. **Methods**: We tested seven single nucleotide polymorphisms (SNPs) that are known to be associated with type 1 diabetes in a large multiple sclerosis dataset consisting of 2,369 trio families, 5,737 cases and 10,296 unrelated controls. Samples were recruited from across six countries: Australia, Belgium, Norway, Sweden, United Kingdom (UK) and the United States of America (USA) that are within the IMSGC. **Results**: Two of these seven SNPs also demonstrated evidence for association with multiple sclerosis; rs12708716 from the C-type lectin domain family 16, member A (CLEC16A) gene ($p=1.6x10^{-16}$) and rs763361 from the CD226 gene ($p=5.4x10^{-8}$). In each case the allele associated with increased risk for multiple sclerosis was identical to that showing evidence for association with type 1 diabetes. **Conclusions**: These findings thereby suggest two additional multiple sclerosis susceptibility genes and lend support to the notion of autoimmune susceptibility genes.
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P904

Infections and vaccinations and the risk of multiple sclerosis: a population-based study

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Background: Genetic and environmental factors have important roles in multiple sclerosis (MS) susceptibility. Several studies have attempted to correlate exposure to viral illness with the subsequent development of MS. **Objective**: Here in a population based Canadian cohort, we investigate the relationship between prior clinical infection or vaccination and the risk of MS. **Methods**: Using the longitudinal Canadian database, 14362 MS index cases and 7671 spouse controls were asked about history of measles, mumps, rubella, varicella and infectious mononucleosis as well as details about vaccination with measles, mumps,rubella, hepatitis B and influenza vaccines. Comparisons were made between cases and spouse controls. **Results**: Spouse controls and stratification by sex appear to correct for ascertainment bias because with a single exception we found no significant differences between cases and controls for all viral exposures and vaccinations. However 699 cases and 165 controls reported a history of infectious mononucleosis (chi 2 = 97.9, 1 d.f., $p<0.001$) (corrected odds ratio 2.06, 95% confidence interval 1.71–2.48). **Conclusions**: Historically reported measles, mumps, rubella, varicella and vaccination for hepatitis B, influenza, measles, mumps and rubella are not associated with increased risk of MS later in life. A clinical history of infectious mononucleosis is conspicuously associated with increased MS susceptibility. These findings support studies implicating Epstein Barr virus in MS disease susceptibility but a co-association between MS susceptibility and clinically apparent infectious mononucleosis cannot be excluded.
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Imaging

P905

Predictive value of magnetic resonance imaging for future clinical outcome

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Background: Although only weak correlations between MRI and clinical findings have been found, MRI variables are widely used as secondary outcome measures in MS-related clinical trials. Better knowledge of these possible relationships is clinically important and could help patient selection in future trials in MS. **Objective**: To