Late onset MS is associated with more severe longitudinal development of central brain atrophy compared to adult onset MS

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Objective: To examine whether the rate of brain atrophy in late onset multiple sclerosis (LOMS) is higher compared to the age-matched adult onset MS (AOMS) population.

Background: LOMS is associated with more aggressive clinical course and progressive forms of the disease, but the effect of age of disease onset on the rate of brain atrophy was not previously investigated.

Design/Methods: This was a retrospective, longitudinal, single-center cohort study that included 580 MS patients from a pool of 2,200 patients collected over 10 years. MS patients were classified as having LOMS (n=290), if they were >40 years old at disease onset and AOMS (n=290) if they were ≤40 years old. The mean follow-up was 5.5 years and patients were evaluated with clinical and MRI examinations at both baseline and follow-up. T2-lesion volume (LV), percent brain volume change (PBVC) and percent lateral ventricle volume change (PLVVC) were measured over the follow-up.

Results: The mean age at baseline was 53 (SD 5.9) years in both LOMS and AOMS patients, while the mean disease duration was 6.9 (SD 5.4) and 17.6 (SD 8.8) years, in the two groups, respectively. The median baseline EDSS was significantly higher in AOMS compared to LOMS patients (p<0.001). At baseline, AOMS patients had significantly higher T2-LV (p=0.003) and LVV (p=0.034), and lower whole brain volume (p=0.033). Over the follow-up, LOMS patients showed significantly higher annualized PLVVC compared to AOMS patients (4.1% vs. 1.6%, p<0.001), while there were no significant differences for PBVC and absolute change in T2-LV between the groups. No significant differences in disability progression were observed between the two groups over the follow-up.

Conclusions: LOMS is associated with more severe longitudinal development of central brain atrophy compared to AOMS.