**ABSTRACT**

**Objective:**
To evaluate the brain volume in Japanese MS patients for the first time.

**Patients and Methods:**
We enrolled 85 consecutive Japanese MS patients and cross-sectionally evaluated their whole brain volume, grey matter volume, white matter volume, and FLAIR-lesion volume. The volumetric data were also collected from total of 1,282 normal Europeans.

**Results:**
The mean brain volume was much smaller in MS patients than in the normal population. Patients with progressive disease (SPMS or PPMS) showed much smaller volumes. There was a significant correlation between the current age and the brain volume in both MS patients and the controls, but the rate of atrophy was faster in MS patients. The estimated annual rate of atrophy in Japanese MS patients was slower than that in Caucasian MS patients. Such linear aging-dependent brain atrophy was observed at a younger age in MS. The whole brain volume and the grey matter volume showed significant correlations with present EDSS, but all of these three variables 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 it seems to be slower than that in Caucasian patients. Japanese MS patients also require early treatment to prevent brain atrophy.

**METHODS**

**Enrollment:**
- 85 Japanese MS patients (24 male : 61 female)
- 1282 Normal Westerners (520 male : 762 female)

**MRI:**
non-contrast 3D-T1, 3D-FLAIR

**Measurement:**
MS metrix (Icometrix, BEL)

**Measured volume:**
whole brain, grey matter, white matter, FLAIR-lesion

**Clinical variables:**
onset age, disease duration, latest EDSS, history of treatment, MS severity score (MSSS)

**RESULTS**

- (Left) Report of volumetry from MS metrix
- (Right) Grey and white matter volume in MS

**CONCLUSIONS**

- Accelerated brain atrophy was confirmed in Japanese MS patients, though the estimated atrophy rate was estimated to be slower than that in Caucasian patients.
- Atrophy in grey matter was aging-related, but atrophy in white matter was not.
- Japanese MS patients also require early treatment to prevent brain atrophy, as in Caucasian patients.

**REFERENCES**