Cladribine: 14 years atrophy and clinical follow-up

Dominique Dive, Christine Ernon and Aurélie Brouwers
University Hospital of Liège, Belgium

Background

Ten patients were included in Clarity and Clarity extension studies in our center. All of them are still followed and long-term brain atrophy and clinical measurements were evaluated.

Methods

Multimodal clinical evaluation (EDSS, 9-HPT, 25-FWT) was used throughout the whole follow-up period. Brain atrophy and T2 lesion load were quantified during the last five years with the IcoBrain technology. Lateral ventricles volumes were quantified with a semi-automated technique (ITK-SNAP software) from study entry to the last exam with a mean follow-up time of 14 years. Total lymphocytes count was evaluated throughout.

Results

Over 14 years, 7 patients didn't require additional therapy after cladribine, as they remained NEDA3 throughout the entire follow-up. Three patients relapsed within 5 years and moved to other treatments. Total lymphocytes were normal at the end of the follow-up period. No patient entered in a secondary progressive phase. EDSS, 9-HPT and 25-FWT did not change significantly after 14.4 years mean time of follow-up. Annual brain atrophy evolution was limited and was comparable to that occurring in normal healthy individuals (whole brain volume -0.33 ± 0.25 % - lateral ventricles volume +1,59 ± 1.50 % - gray matter volume -0,13 ± 0,26 %). Evolution of brain atrophy in NEDA3 patients differed from what was observed in patients who had to be switched to another therapy.

Conclusion

In our cohort of Clarity patients, initial cladribine treatment was associated with stabilization of MS in a majority of patients for over 10 years. Clinical stability was associated with long-term brain atrophy progression in line with what is expected in a healthy population, and differed from what was seen in non-stable patients.