(S23) REDUCTIONS IN MAGNETIC RESONANCE IMAGING ACTIVITY IN RELAPSING-REMITTING MULTIPLE SCLEROSIS PATIENTS TREATED WITH CLADRIBINE TABLETS

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Objectives: Cladribine is activated preferentially in lymphocytes, resulting in targeted and sustained immunomodulation, providing the rationale for its use as a short-course annual multiple sclerosis (MS) treatment. Magnetic resonance imaging (MRI) parameters were evaluated for two dosing regimens of cladribine tablets versus placebo in patients with relapsing-remitting MS (RRMS) in the CLARITY (CLAdRIbine tablets Treating multiple sclerosis orallY) study. Methods: Patients with RRMS (McDonald criteria) were randomized 1:1:1 to receive cladribine tablets (cumulative dose of 5.25 or 3.5 mg/kg) or matching placebo. Cladribine tablets were given in short courses (once daily for 4–5 days) in 2 or 4 consecutive months (28-day periods) in the first 48 weeks, then at weeks 48 and 52 (both groups). Prespecified, hierarchically arranged, secondary MRI end points over 96 weeks included mean number of lesions/patient/scan: T1 gadolinium-enhancing (Gd+) lesions, active T2 lesions, and combined unique (CU) lesions. MRI data were evaluated using a nonparametric analysis of covariance model adjusting for treatment, region, and baseline T1 Gd+ lesion counts. Results were previously presented at the Congress of the European Committee for Treatment and Research in Multiple Sclerosis in 2009. Results: The intention to treat (ITT) population comprised 456, 433, and 437 patients in the 5.25 and 3.5 mg/kg cladribine groups and placebo group, respectively; groups were comparable for baseline MRI characteristics. Patients in the cladribine 5.25 or 3.5 mg/kg groups had significantly less MRI activity than those in the placebo group over 96 weeks, as follows: T1 Gd+ lesions: relative reductions of 87.9% and 85.7% (mean [SE] lesion number, 0.11 [0.05] and 0.12 [0.05] vs. 0.91 [0.05]); active T2 lesions: relative reductions of 76.9% and 73.4% (mean [SE] lesion number, 0.33 [0.06] and 0.38 [0.07] vs. 1.43 [0.06]); CU lesions: relative reductions of 77.9% and 74.4% (mean [SE] lesion number, 0.38 [0.08] and 0.43 [0.08] vs. 1.72 [0.08]); T2 lesion volume: median change from baseline: −1010.75, −583.00, and −227.00 L, respectively; all P values <.001 versus placebo. Conclusions: MRI evidence of disease activity is reduced by both cladribine tablet regimens. The MRI findings were accompanied by significant improvements in clinical outcomes and a favorable safety profile (reported elsewhere), supporting the potential role of cladribine tablets in RRMS treatment.

Supported by: EMD Serono, Inc, Rockland, MA

Disclosure: G. Comi: Novartis, Teva Pharmaceutical Industries Ltd, Sanofi-Aventis, Merck Serono, Bayer Schering (consulting fees); Novartis, Teva Pharmaceutical Industries Ltd, Sanofi-Aventis, Merck Serono, Biogen-Dompé, Bayer Schering (other financial benefits). S. Cook: Merck Serono, Bayer Health Care, Ganmab (consulting fees); EMD Serono, Bayer Health Care (other financial benefits). G. Giovannoni: Merck Serono, Bayer-Schering Pharma (consulting fees); Biogen Idec, Merck Serono, Bayer-Schering Pharma (other financial benefits). K. Rammohan: Bayer Pharmaceuticals, EMD Serono/Pfizer, Teva, Genentech, Biogen, Genzyme, Acorda, UCB Pharma, Novartis (consulting fees); Bayer, EMD Serono/Pfizer, Teva, Biogen, Genzyme, Acorda, UCB Pharma (other financial benefits). P. Rieckmann: Merck Serono, Biogen Idec, Teva, Bayer, Novartis (consulting fees); Merck Serono, Biogen Idec, Teva (other financial benefits). P. Soelberg-Sorensen: Merck Serono, Biogen Idec, Teva, Genmab, Novartis (consulting fees); Bayer Schering, Merck Serono, Biogen Idec, Teva (other financial benefits). P. Vermersch: Merck Serono, Bayer Schering, Teva-Aventis, Biogen Idec, Novartis (consulting fees); Merck Serono, Biogen Idec, Bayer Schering, Novartis (other financial benefits). P. Chang: EMD Serono (salary). A. Hamlett: EMD Serono (salary). B. Musch: EMD Serono (salary). V. Viglietta: EMD Serono (salary). S. Greenberg: EMD Serono (salary).

Keywords: disease-modifying treatment in MS, imaging and MS