Onset of clinical and MRI efficacy of ocrelizumab in relapsing multiple sclerosis

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Study objective and summary result
This study investigated whether ocrelizumab suppresses MRI-measured and clinically assessed disease activity in patients with relapsing-remitting multiple sclerosis (RRMS) or relapsing multiple sclerosis (RMS), and the results supported ocrelizumab’s rapid achievement of those measures.

Classification of evidence
Class II.

What is known and what this paper adds
Recent clinical trials have separately reported that ocrelizumab suppresses MRI-measured and clinically assessed disease activity in patients with RRMS or RMS. This investigation confirms these findings by analyzing pooled data.

Participants and setting
The investigators analyzed data from 163 adults with RRMS who participated in an international phase 2 trial (NCT00676715) between 2008 and 2012. They also analyzed data from 1,656 adults with RMS who participated in either of 2 international phase 3 trials (OPERA I [NCT01247324] and OPERA II [NCT01412333]) between 2011 and 2015.

Design, size, and duration
The 163 individuals from the partially blinded phase 2 trial were randomized 1:1:1 to groups receiving placebo treatment, interferon β-1a, or ocrelizumab and underwent MRI scanning every 4 weeks for 24 weeks. The MRI scans were reviewed to detect new or enlarged lesions. The 1,656 individuals from the double-blind phase 3 trials were randomized 1:1 to groups receiving interferon β-1a or ocrelizumab and were monitored for relapses by 8 weeks epochs over a 96-week period.

Primary outcome measures
The earliest timepoints at which ocrelizumab produced measurable reductions in MRI disease activity or annualized relapse rates (ARRs).

Main results and the role of chance
Relative to placebo treatment, ocrelizumab produced reductions in MRI disease activity by week 4 ($p < 0.001$). Relative to interferon β-1a, ocrelizumab reduced ARRs within the first 8 weeks ($p = 0.005$).

Bias, confounding, and other reasons for caution
These analyses were conducted post hoc and included no multiple-comparisons corrections.

Generalizability to other populations
The inclusion of data from multiple countries favors the generalizability of the results.

Study funding/potential competing interests
This study was funded by Hoffmann-La Roche. Some authors report serving on the editorial boards of journals, including Neurology®; receiving personal fees and funding from healthcare companies, including Hoffmann-La Roche; receiving funding from foundations and government agencies; and being present or former employees and shareholders of Hoffmann-La Roche. Go to Neurology.org/N for full disclosures.

A draft of the short-form article was written by M. Dalefield, a writer with Editage, a division of Cactus Communications. The authors of the full-length article and the journal editors edited and approved the final version.