Comparative Clinical Effectiveness of Monoclonal Antibodies for the Treatment of Relapsing Multiple Sclerosis: A Systematic Review and Network Meta-Analysis

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Objective

Compare 5 monoclonal antibodies (natalizumab, ofatumumab, ocrelizumab, rituximab, ublituximab) to placebo and oral DMTs (dimethyl fumarate, fingolimod, ozanimod, ponesimod, and teriflunomide) for relapsing forms of MS as first-line therapies.

Methods

We reviewed 22 RCTs of 1 year duration or longer in adults with relapsing MS and performed a Bayesian network meta-analysis (NMA) for ARR, time to 3-month and 6-month CDP-3/6 outcomes. We explored uncertainties with sensitivity analyses.

Results

- Monoclonal antibody DMTs were statistically superior to placebo, reducing ARR by ~70%.
- The monoclonal antibody DMTs were generally superior to oral agents, although the magnitude of the relative differences varied.
- No statistically significant difference in ARR reduction was observed between the monoclonal antibody DMTs. A similar trend was observed for CDP-3 and CDP-6, but with greater uncertainty.
- The results were robust to sensitivity analyses.

Conclusions

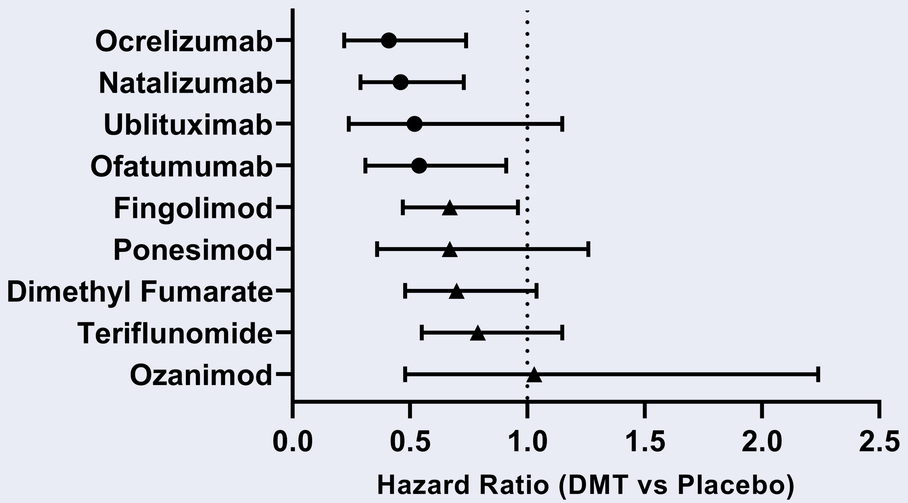
- There is insufficient evidence to establish whether there are differences in clinical effectiveness amongst the monoclonal antibodies.
- With no statistically significant difference in effectiveness amongst monoclonal antibody DMTs, choice of therapy will depend on safety profile, patient preferences, and cost.
- The results of the NMA may help patients and clinicians in the shared decision-making process when choosing first-line therapy.

Acronyms

ARR: Annualized relapse rate, CDP-3/6: Confirmed disability progression at 3/6 months, DMT: Disease modifying therapy, MS: Multiple Sclerosis, NMA: Network meta-analysis, RCT: Randomized controlled trial

Figure 1: ARR NMA Results

Figure 2: Time to CDP-6 NMA Results



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