Canadian Agency for Drugs and Technologies in Health

Therapeutic Review

Biologic Response Modifier Agents for Adults with Rheumatoid Arthritis

CADTH Project in Brief

Condition

Rheumatoid arthritis (RA) is a chronic autoimmune disorder that primarily affects the lining of the joints. It causes inflammation that can lead to long-term joint damage, resulting in chronic pain, loss of function, and disability.

Technologies

Biologic response modifier agents available in Canada at the time of the review included tumour necrosis factor (TNF)-alpha inhibitors (adalimumab, certolizumab pegol, etanercept, golimumab, and infliximab), interleukin-1 antagonists (anakinra), CD28 costimulatory modulators (abatacept), and CD20+ B-lymphocyte inhibitors (rituximab).

Issue

Following failure of a disease-modifying antirheumatic drug (DMARD), the addition of a biologic is often considered the next step in therapy. Given the increasing use of biologic therapies to treat RA, health care providers, patients, and policy-makers need evidence-based information to support optimal use of biologics and decision-making. The comparative effectiveness, harms, and cost-effectiveness of the eight biologic therapies (including five TNF-alpha inhibitors) is unknown. Optimal treatment strategies in patients failing an initial TNF-alpha inhibitor are also unclear.

Methods

The CADTH therapeutic review evaluated the comparative effectiveness, harms, and cost-effectiveness of the eight biologics indicated for the treatment of RA in Canada at the time of the therapeutic review. The comparative efficacy and harms were explored through a systematic review and indirect mixed treatment comparison meta-analyses. Limited systematic reviews were also conducted on dose escalation and switching between biologic agents.

Results

- The clinical and economic evaluations were used by the Therapeutic Review Panel to generate recommendations about the optimal use of biologic response modifier agents in the treatment of RA.
- Intervention tools to support the implementation of Therapeutic Review Panel recommendations and evidence-based optimal prescribing and use of biologics in the treatment of RA were developed.

Key Messages

1. For patients with an inadequate response to optimal doses of disease-modifying antirheumatic drugs, one of the following biologics could be used in combination with methotrexate or other DMARDs: abatacept, adalimumab, etanercept, golimumab, or infliximab. Similar efficacy, harms, and costs were observed for these biologics.
2. For the TNF-alpha inhibitors reviewed, if no response or a loss of response is observed, the dose should not be increased beyond the lowest approved dose. There was insufficient evidence of a clinical benefit of dose escalation to justify its increased costs.
3. Following failure of a first TNF-alpha inhibitor, patients may be switched to abatacept or rituximab. There was insufficient randomized controlled trial evidence to support switching to a different TNF-alpha inhibitor.

This summary is based on the *Therapeutic Review Panel Recommendations for Biologic Response Modifier Agents for Adults with Rheumatoid Arthritis*.

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