Biologic Agents as First-Line Treatment for Patients With Rheumatoid Arthritis: A Review

Context
Rheumatoid arthritis (RA) is a chronic autoimmune disease that affects approximately 1% of Canadians. RA 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. Goals of therapy for RA include the slowing of disease progression and pain control. Drugs traditionally used to treat RA — disease-modifying antirheumatic drugs (DMARDS) such as methotrexate — modify the clinical course of RA and slow or stop radiographic progression. However, the approval of biologic drug therapies over the last decade has led to an increase in therapeutic options for patients with RA.

Technology
The newer biologic agents target specific mechanisms of inflammation and may prevent joint damage. Biologic therapies available in Canada include the tumor necrosis factor (TNF) inhibitors (adalimumab, etanercept, infliximab, golimumab, and certolizumab), a T cell costimulatory inhibitor (abatacept), a B lymphocyte-depleting agent (rituximab), an interleukin 6 antagonist (tocilizumab), and an interleukin 1 inhibitor (anakinra).

Issue
RA leads to increased morbidity and mortality, and reduces the quality of life for patients. As a result, earlier and more aggressive treatment strategies are being used but uncertainty remains about the optimal use of biologic agents. A review of the clinical efficacy, cost-effectiveness, and guidelines for biologic agents will help to guide decisions about their use in the treatment of RA.

Methods
A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Key Messages
For the treatment of patients with RA:
- First-line therapy with biologic agents
  - Results in short-term benefits (i.e., clinical response, radiographic progression) compared with methotrexate therapy
  - Does not appear to be cost-effective (based on 6 of 8 non-Canadian studies).
- Evidence-based guidelines were inconsistent
  - 3 recommended first-line biologic therapy in certain patients, 1 did not.

Results
The literature search identified 1,336 citations of which 75 were deemed potentially relevant. An additional 4 articles were identified from the grey literature. Of the 79 reports, 24 met the criteria for inclusion in this review: 6 systematic reviews, 9 RCTs, 5 economic evaluations, and 4 evidence-based guidelines.