Anti-TNF-α Drugs for Refractory Inflammatory Bowel Disease: Clinical- and Cost-Effectiveness Analyses

Technologies and Conditions
Anti-tumour necrosis factor-alpha (anti-TNF-α) therapies (adalimumab, etanercept, infliximab) for treatment of Crohn’s disease and ulcerative colitis patients unresponsive to conventional therapy.

Issue
Crohn’s disease and ulcerative colitis are two forms of inflammatory bowel disease. Newer biological therapies have changed the treatment approach, particularly in patients with inadequate or no response to conventional therapies. There is growing use of anti-TNF-α agents to treat patients who are not responding to conventional anti-inflammatory treatments, and the publicly funded health care system is seeing an increase in reimbursement requests.

Given the growing number of requests for public funding of anti-TNF-α drugs for Crohn’s disease and ulcerative colitis patients not responding to conventional anti-inflammatory therapies, an assessment of clinical- and cost-effectiveness is timely.

Methods and Results
A systematic review and economic evaluation to examine clinical- and cost-effectiveness of anti-TNF-α agents compared with conventional therapy was performed. Comparative effectiveness was assessed by performing a systematic review of clinical studies. A tradeoff of health for health care resources was estimated using a mathematical model populated with information from the literature review and relevant Canadian sources.

In terms of clinical-effectiveness, infliximab and adalimumab were found to be consistently superior to placebo in the induction and maintenance of remission. No effect could be detected for etanercept. Compared to usual care, anti-TNF-α drugs are unlikely to be cost-effective in Crohn’s disease unless society is willing to pay more than $208,000 for a healthy year of life (QALY). In ulcerative colitis, a strategy based on 5mg/kg of infliximab and adalimumab is unlikely to be a cost-effective compared to usual care unless society is willing to pay more than $370,000 for a QALY. Higher doses of infliximab will cost more and result in less health benefit.

Implications for Decision Making
- Strategies involving infliximab and adalimumab may lead to better health outcomes. Infliximab and adalimumab have shown a consistent superiority to placebo in the induction and maintenance of clinical remission and in reducing the rates of surgery and hospitalization in refractory Crohn’s Disease. Infliximab also leads to higher response and remission rates in patients with UC, compared with placebo. Antibodies against anti-TNF-α drugs are less likely to form in scheduled therapy. No evidence of a similar effect with etanercept has been observed.
- The costs of these treatments may be perceived as high. The costs associated with potential health benefits may be perceived as high compared to the potential health benefits available from using scarce resources to fund other technologies.
- Funding decisions may require more clinical and economic evidence. There are a limited number of long-term randomized controlled trials demonstrating clinical-effectiveness, safety, and cost-effectiveness of anti-TNF-α drugs. Additional evidence will help better determine the best use of health care resources for funding decisions and could be appropriate given the large remission rates seen in some induction trials.