Long-Term Use of Ranibizumab for the Treatment of Age-Related Macular Degeneration: A Review

Context
Age-related macular degeneration (AMD) is a common cause of vision loss and blindness in elderly people around the world, and affects 1 million people in Canada. The more common and less severe form of AMD is nonexudative AMD, also called dry AMD. The more severe form is neovascular or exudative AMD, also called wet AMD. In wet AMD, abnormal blood vessels form under the retina and leak fluid or blood into the macula (the centre of the retina).

Technology
Ranibizumab is a vascular endothelial growth factor (VEGF) inhibitor, meaning that it slows the growth of abnormal blood vessels. It is approved for use in wet AMD and is given by intravitreal injection (injection into the eye) once a month.

Issue
In 2008, the Canadian Expert Drug Advisory Committee (CEDAC) recommended coverage of ranibizumab for wet AMD up to a maximum of 15 doses. The value of longer treatment was unclear.

CEDAC also recommended exploring opportunities to reduce the large amount of wastage resulting from the way the drug is packaged.

Bevacizumab is a VEGF inhibitor indicated for the treatment of some types of cancer. Health Canada has not approved its use in AMD. It has been used off-label for AMD at a considerably lower cost.

A review of the clinical efficacy, safety, and cost-effectiveness of long-term ranibizumab will help inform decisions regarding the treatment of AMD.

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
- No studies were found that directly compared monthly ranibizumab for 15 doses versus more than 15 doses.
- Monthly dosing appears to be more effective than as-needed dosing. Patients on monthly dosing had an average of 28 injections versus an average of 5 for the as-needed group.
- One study showed that ranibizumab was well-tolerated for four or more years and remained more effective than no treatment.
- One study showed similar effects on visual acuity with two years of treatment with ranibizumab or bevacizumab.
- Four studies suggest that bevacizumab provides better value for money.
- Bevacizumab has not been approved by Health Canada for use in AMD.

Results
The literature search identified 593 citations, with 3 additional articles identified from other sources. After screening the abstracts, 33 were deemed potentially relevant and 7 met the criteria for inclusion in this review — 1 randomized controlled trial; 1 non-randomized, open-label extension study; 2 cost-effectiveness analyses; and 3 cost-utility analyses.