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Project in Brief

Drug Therapies for Relapsing-Remitting Multiple Sclerosis

Condition

Multiple sclerosis (MS) is a disabling disease of the central nervous system. It damages the myelin (the protective layer that forms around nerves), including the myelin in the brain and spinal cord. Relapsing-remitting MS (RRMS) is the most common type of MS, affecting 85 % to 90 % of patients. In RRMS, symptoms appear and then partially or completely fade away. The frequency of relapse is highly variable, but relapses tends to occur more often in the first few years of disease onset.

Drugs

Disease-modifying treatments (DMTs) are the standard of care for patients with RRMS. These drugs are prescribed to reduce the frequency of relapses and to potentially delay the progression of physical disability. In Canada, the available DMTs include interferon beta-1a and interferon beta-1b, glatiramer acetate, natalizumab, fingolimod, and dimethyl fumarate.

Issues

The comparative safety and effectiveness of RRMS treatments is not well-established. Further, treatment options are changing rapidly as new oral and injectable drugs are approved for use in Canada. In this context, it is important to determine the comparative clinical and cost-effectiveness of currently available and newly emerging DMTs, both alone and in combination.

Methods

An expert committee made recommendations on drug therapies for RRMS. The recommendations were based on a systematic review and network meta-analysis of the clinical evidence of these drugs, as well as an economic analysis of their cost-effectiveness.

Key Messages

- For patients newly diagnosed with RRMS, start with glatiramer acetate or interferon beta-1b.
- For patients who do not respond to or are unable to take *one* of the recommended initial drugs, *switch to the other* recommended drug.
- For patients who do not respond to or are unable to take *both* glatiramer acetate and interferon beta-1b, choose one of dimethyl fumarate, fingolimod, or natalizumab, based on cost and safety considerations.
- Combination therapy should not be used.

Research Results

Clinical evidence suggests that glatiramer acetate and interferon beta-1b have clinically meaningful effects on the annualized relapse rate relative to placebo and are the most cost-effective initial therapies. The economic analysis indicates that interferon beta-1a, dimethyl fumarate, fingolimod, and natalizumab were not cost-effective as initial treatment.

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