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[Intervention Review]

Interferon in relapsing-remitting multiple sclerosis

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Editorial group: Cochrane Multiple Sclerosis and Rare Diseases of the CNS Group. **Publication status and date:** Edited (no change to conclusions), published in Issue 1, 2010.

Citation: Rice GPA, Incorvaia B, Munari LM, Ebers G, Polman C, D'Amico R, Parmelli E, Filippini G. Interferon in relapsing-remitting multiple sclerosis. *Cochrane Database of Systematic Reviews* 2001, Issue 4. Art. No.: CD002002. DOI: 10.1002/14651858.CD002002.

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ABSTRACT

Background

Recombinant interferons have been shown to suppress both the clinical and magnetic resonance imaging (MRI) measures of disease activity in patients with relapsing remitting multiple sclerosis (RRMS).

Objectives

The objective of this review was to assess the effects of recombinant interferons in adults with RRMS.

Search methods

We searched the Cochrane Multiple Sclerosis Group trials register (April 2007), MEDLINE (January 1966 April 2007), EMBASE (January 1985 to April 2007) and reference lists of articles. We also contacted manufacturers and researchers in the field

Selection criteria

The trials selected were double-blind, placebo-controlled, randomised trials of RRMS patients who were treated with recombinant interferon, given by the subcutaneous or the intramuscular route.

Data collection and analysis

All reviewers independently assessed trial quality and extracted data. Study authors were contacted for additional information. Adverse effects information was collected from the trials.

Main results

Although eight trials involving 1301 participants were included in this review, only 919 (71%) contributed to the results concerning exacerbations and progression of the disease at two years. Specifically interferon significantly reduced the occurrence of exacerbations (Relative risk [RR] 0.80, 95% confidence interval [CI] 0.73 to 0.88, p < 0.001) and progression of the disease (RR 0.69, 95% CI 0.55 to 0.87, p = 0.002) two years after randomisation. However, the correct assignment of dropouts was essential to the demonstration of efficacy, most conspicuously concerning the effect of the drug on disease progression. If interferon-treated participants who dropped out were deemed to have progressed (worst case scenario) the significance of these effects was lost (RR 1.31, 95% CI 0.60 to 2.89, p = 0.5). The evolution in magnetic resonance imaging (MRI) technology in the decade in which these trials were performed and different reporting of data among



trials made it impossible to perform a quantitative analysis of the MRI results. Both clinical and laboratory side effects reported in the trials were more frequent in treated participants than in controls; there was no information after two years of follow-up. The impact of interferon treatment (and its side effects) on the quality of life of patients was not reported in any trial included in this review.

Authors' conclusions

The efficacy of interferon on exacerbations and disease progression in patients with relapsing remitting MS was modest after one and two years of treatment. Interferon administered by the oral route was not effective for prevention of relapses. Longer follow-up and more uniform reporting of clinical and MRI outcomes among these trials might have allowed for a more convincing conclusion.

PLAIN LANGUAGE SUMMARY

The use of interferons for treating people with the relapsing-remitting form of multiple sclerosis

Multiple sclerosis (MS) is a chronic disease of the nervous system which affects young and middle-aged adults. Repeated damage to the myelin sheaths and other parts of the nerves can lead to serious disability. MS may be related to the immune system. Interferons have several effects on the immune system, and act against viruses. Interferons can help to reduce disability and attacks for people with multiple sclerosis, but there is not enough evidence about their usefulness in the long term. The review of trials found that interferons administered intramuscularly or subcutaneously can lead to a moderate reduction in recurrences and disability in people who have MS with remissions. Interferon-1a administered by the oral route was not effective for prevention of relapses. Side effects were usually influenza-like symptoms, injection site-reactions, pains in the joints and muscles, fatigue and headache.