

Interferons (Avonex®, Betaferon®, Rebif®) for relapsing remitting multiple sclerosis (RRMS)

Review Question:

What happens when people with RRMS take interferons?

The short answer:

This review found that interferons (Avonex®, Betaferon® and Rebif®) can lead to a moderate reduction in relapses and disability in people with RRMS in the short-term (two years). The long-term effects are unclear. The side effects of interferons most commonly include flu-like symptoms, headache and pain and redness at the injection site but can include a range of others.

This is the printable version of an online resource providing plain language summaries of high quality research about MS treatments.

Visit the **Making Sense of MS Research** web site to learn more
www.makingsenseofMSresearch.org.au

THE SHORT ANSWER

This is a summary of the research about the effect of interferons (Avonex®, Betaferon®, Rebif®) in people with relapsing remitting multiple sclerosis (RRMS) written in plain language for people with MS and their family members. It is based on a report (known as a systematic review) that was produced by The Cochrane Collaboration.

In 2009, the authors of the report searched for all the randomised controlled trials (RCTs) on this topic and combined the results. They aimed to provide an overall picture of whether interferons are effective in RRMS. They found eight trials, including 1301 participants. As at August 2012, there were no new RCTs conducted in this area.



Up to date as at August 2012

THE DETAILED ANSWER

Relapses

Taking interferons by injection for two years reduces the chance of having one or more relapses

In words

- **Without** interferons **69 per 100** people would experience one or more relapses over two years and 31 would not
- **With** interferons **55 per 100** people would experience one or more relapses over two years and 45 would not
- Therefore with interferons, **14 fewer** per 100 people would experience one or more relapses over two years

These figures may seem unfamiliar to you. Commonly, we see the effectiveness of interferons reported as “interferons reduce the risk of relapse by 30%”. See the FAQ page on the web site for an explanation of why our numbers look different

In pictures



Without interferons, **69 per 100** people with MS are estimated to experience one or more relapses



With interferons, **55 per 100** people with MS are estimated to experience one or more relapses

In technical terms, the result was not statistically significant, the confidence intervals crossed 1 and the boundaries were wide. This means the effect of interferons could easily have occurred by chance alone and the effect in the broader MS population could be variable.

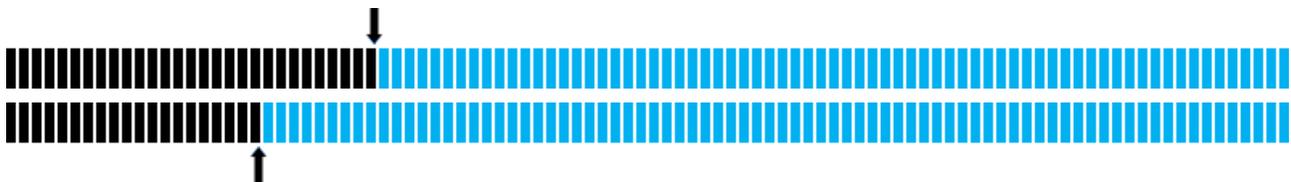
Disability

Taking interferons by injection for two years may reduce the chance of disability getting worse
In words

- **Without** Interferons **29 per 100** people would experience worsening disability over two years and 71 would not
- **With** interferons **20 per 100** people would experience worsening disability over two years and 80 would not
- Therefore with interferons, **9 fewer** per 100 people would experience worsening disability over two years

In pictures

Without interferons, **29 per 100** people with MS are estimated to have worsening disability



With interferons, **20 per 100** people with MS are estimated to have worsening disability

In technical terms, the result was statistically significant, the confidence intervals did not cross 1 and the boundaries were not wide. This means the effect of interferons was unlikely to be due to chance alone. However, many people dropped out of the trials early, which adds some uncertainty to the result.

WHAT IS THIS TREATMENT?

Interferons are considered a 'first line' treatment of multiple sclerosis and are commonly prescribed for people with RRMS. In Australia, the Therapeutic Goods Administration (TGA) has approved interferons in the treatment of RRMS. They are also covered under the Pharmaceutical Benefits Scheme (PBS). For more information about how to take interferons you can contact MS Australia and ask to speak with an MS Nurse.

Side effects

Interferons are generally well tolerated. Most interferon side effects are mild and can often be relieved with symptomatic treatments, without the need to stop taking them.

- Very common (10-100 per 100 people)
- Common (1-9 per 100 people)
- Uncommon (less than 1 per 100 people)
- ? There is no information about the side-effect

Symptoms

	Avonex®	Betaferon®	Rebif®
Flu like symptoms (fever, chills, cough, sore throat, flu-like symptoms)	●●●	●●●	●●●
Headache	●●●	●●●	●●●
Pain and redness at the injection site	●●	●●●	●●●
Muscle weakness	●●	●●●	●●
Itching, rash	●●	●	●●
Nausea, vomiting and diarrhoea	●●	●	●●
Depressed mood, insomnia	●●	●	●●
Joint pain	●●	?	●●
Skin break down at the injection site	?	●●	●
Weight loss	●●	?	?
Hair loss	●	●	●
High blood pressure	?	●	?

Blood test values

	Avonex®	Betaferon®	Rebif®
Low white blood cell counts	●●	●	●●●
Low red blood cell counts	●●	●	●●●
Low blood platelet counts	●	●	●●●
Abnormal liver enzyme levels	?	●	●●●
Abnormal thyroid hormones	?	?	●

Sources: This side effect data has been collated by the IN-DEEP project team using publicly available data from the European Medicines Agency, Micromedex and the studies included in Cochrane reviews on Interferons.

Up to date as at August 2012

What we don't know from the results of this review

Based on the studies included in the Cochrane review, we are uncertain about the effect of interferons on disability getting worse when taken for more than two years. This review did not draw any conclusions about whether there was any difference between the effect of the three different interferons (Avonex®, Betaferon® and Rebif®).

To understand the effects and side effects of medications over many years, health professionals and researchers rely on long-term follow up studies, often called observational studies or Phase IV clinical trials.

What about the quality of the included studies?

Overall, the quality of these results is moderate. The studies were randomised controlled trials, which are considered the most rigorous study design that minimises the risk of misleading results. However, many of the studies had major weaknesses; most commonly a large number of participants dropped out before the study ended. This means we are somewhat uncertain about the results.

The really detailed answer

For more information, or to read about the individual studies included in this review, you can access the Cochrane review on which this treatment summary is based:

- Rice GPA, Ingorvaia 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

DOES THIS APPLY TO ME?

When deciding if this information applies to you it's helpful to think about how similar you are to the people that were included in the studies.

What we know about the people included in the Interferons studies:

- They had relapsing remitting MS (for between 1 to 30 years)
- They were aged between 18 to 57 years
- They included people with mild to moderate disability levels

If I am similar to the people in the studies, can I expect the same results?

It is important to remember that studies deal with averages and statistics. Even if you are similar to the people in the studies, we can't know for sure that you will respond in the same way.

What we can say, is that, on average, less people who take interferons will experience a relapse in the first two years, compared to people who do not take interferons.

If you have other kinds of MS, please see our other summaries on the effects of Interferons in people with clinically isolated syndrome (CIS) (coming soon), primary progressive MS (PPMS) and secondary progressive MS (SPMS).

Up to date as at August 2012

QUESTIONS FOR MY HEALTH PROFESSIONAL

You might like to ask your health professional to help you answer the following questions:

- How do I decide whether Interferons are right for my type of MS?
- How do I decide what type of interferon is right for me?
- What about the differences between taking different interferons, i.e.
 - How often will I have to take them?
 - Where are they usually injected?
 - How are they stored and prepared?
- How soon after diagnosis is it recommended to take interferons?
- What monitoring will I need if I take interferons?
- How can I manage or minimise side effects?
- If I don't take interferons, what other options could I consider to manage my MS?

FIND OUT MORE

For more information about treatment options for RRMS you can contact:

- Your health professional
- Your local MS Australia office

Or, you can Google the following web-based resources:

- Disease Modifying Drug Therapy: What you need to know (MS Trust)
- Pharmacological Treatments in MS (MS In Focus)

Would you like to talk to someone about this?

Information can be unsettling or overwhelming, particularly when it relates to making a decision that requires weighing up difficult choices. Finding out about possible side effects can be scary. Inconclusive or negative findings can be frustrating or confusing.

If you would like to talk to someone about the information that is presented here, please contact your local MS Australia office on the details below

MS Australia – ACT/NSW/VIC

Free call: 1800 042 138 (from all three states)

E: msconnect@msaustralia.org.au

MS Australia – Queensland

P: (07) 3840 0888

Freecall: 1800 287 367

E: info@msqld.org.au

MS Australia – SA & NT

P: (08) 7002 6500

E: info@ms.asn.au

MS Australia – Tasmania

P: (03) 6220 111

E: aboutus@mstas.org.au

Multiple Sclerosis Society of WA

P: (08) 9365 4888

Country callers: 1800 287 367

E: enquiries@mswa.org.au



These summaries have been derived from Cochrane reviews published in the Cochrane Database of Systematic Reviews in The Cochrane Library. Their content has, as far as possible, been checked with the authors of the original reviews, but the summaries should not be regarded as an official product of the Cochrane Collaboration.

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