

Interferons (Avonex®, Betaferon®, Rebif®) for primary progressive multiple sclerosis (RRMS)

Review Question:

What happens when people with PPMS take interferons?

The short answer:

There is limited scientific data about the effect of interferons in people with primary progressive multiple sclerosis. The available evidence suggests that interferons are not effective in stopping disability from getting worse in people with PPMS. More studies would allow us to be more certain about the result. 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 (or the back page of this document) 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 primary progressive multiple sclerosis (PPMS) 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 August 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 PPMS. They found two trials, including 123 participants. As at August 2012, there were no new RCTs conducted in this area.



Up to date as at August 2012

THE DETAILED ANSWER

Disability

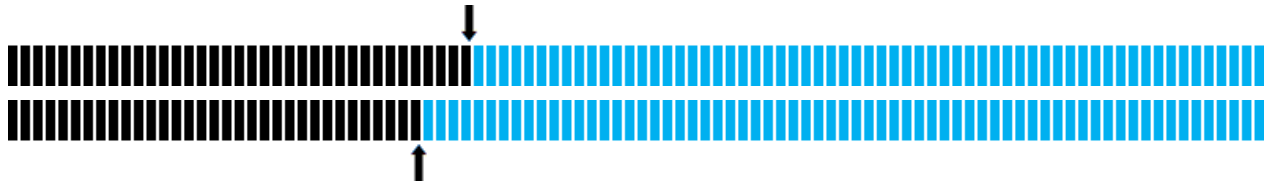
Interferons **do not appear to have any effect** on the chance of disability getting worse over two years.

In words

- **Without** interferons **37 per 100** people would experience worsening disability over two years and 63 would not.
- **With** interferons **33 per 100** people would experience worsening disability over two years and 67 would not.
- Therefore with interferons **4 fewer** people per 100 would experience worsening disability over two years compared to without interferon.

In pictures

Without interferons, **37 per 100** people with MS are estimated to have worsening disability



With interferons, **33 per 100** people with MS are estimated to have worsening disability

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

Do these results look different from what you've read elsewhere?

See the back page of this treatment summary for an explanation. You can also discuss the results with your local MS Australia office.

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 publically 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

In this review there was no information about the effect of interferons on quality of life in people with primary progressive MS. Because the studies in this review only went for two years we don't know the effect of interferons on primary progressive MS in the longer term.

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®).

What about the quality of the included studies?

Overall, the quality of these results is low. The studies were randomised controlled trials, which are considered the most rigorous study design that minimises the risk of misleading results. However, there were only two studies, with a total of 123 participants included in the review. To be more certain about the effect of interferons in PPMS we need more studies.

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:

- Rojas JI, Romano M, Ciapponi A, Patrucco L, Cristiano E. Interferon Beta for Primary Progressive Multiple Sclerosis. Cochrane Database of Systematic Reviews 2010, Issue 1

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 primary progressive MS
- They were aged between 18 to 65 years
- They included people with a range of 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, people who have primary progressive MS do not appear to benefit from taking 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), relapsing remitting MS (RRMS) 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:

- Should I be taking interferons if I have PPMS?
- What other options do I have for managing my MS?

FIND OUT MORE

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

- Your health professional
- Your local MS Australia office

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

- Primary Progressive MS exposed (MS Trust)

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.

Up to date as at August 2012

ABOUT THIS MS TREATMENT SUMMARY

The results presented here are only one piece of the information jigsaw you might need to make a decision

Where does the treatment summary information come from?

We have based our treatment summaries on systematic reviews, produced by the Cochrane Collaboration. The Cochrane Collaboration is recognised as a world leader in the production of independent, high-quality research about health care.

A systematic review is a report that sums up the best available research on a particular topic. This allows the results from a number of studies to be pooled together. The authors follow careful procedures and look at the strength of the evidence to make informed conclusions about the overall findings. Systematic reviews help us to decide if treatments work and whether any more research needs to be done. Systematic reviews of multiple studies are generally considered more convincing than just looking at the results of single studies alone.

This information is only one piece of the information jigsaw

We present how well this treatment works *on average* because that is the way the research is conducted. How an individual responds might be different. Each summary is only one piece of the information jigsaw. If you are making a decision, the complete jigsaw would include other pieces, such as your preferences, your health professional's clinical experience, and other pieces of information, such as how treatments work over a long time span. Please talk to your health professional or local MS Australia staff for more information.

Why might these results look different from what I've seen elsewhere?

There can be a number of different reasons for this, including:

- Cochrane Collaboration researchers may analyse the results of the studies in different ways from the original study authors. They do this if they think this will provide a more accurate estimate of how well the treatment works. This may lead to more conservative findings.
- Usually, Cochrane reviews only include the highest quality research. High-quality research tends to provide more conservative estimates of how well a treatment works. Less rigorously designed studies can overestimate the effectiveness of treatments.
- There are ways of presenting statistics that look more or less convincing. We have tried to present the results in an understandable and accurate way that does not overstate their effect
- It is also important to note that health professionals and MS Australia rely on a range of research on which to base their advice about MS treatments. Cochrane reviews rely on information collected in clinical studies, often randomised controlled trials. This doesn't always give a complete picture about treatments. For example, long term follow up studies are needed to suggest how well MS treatments work over 10 or 20 years, or to learn about side-effects.

Up to date as at August 2012