

Neurology

Disease Modifying Therapy Clinic at Addenbrooke's Hospital, Cambridge

This is a specialist clinic. You will be seen by one of the Consultant Neurologists, Dr Paul Molyneux or Dr John Thorpe. They have a particular interest in Multiple Sclerosis (MS).

You may also see one of the MS Specialist Nurses.

This leaflet will answer some of the frequently asked questions by people who are being assessed for, offered and are considering therapy.

What are disease modifying drugs and what do they do?

MS is a condition where damage may occur to the central nervous system (brain, optic nerves and spinal cord). Together with the nerves connecting to the rest of the body, they form the body's communication network.

Nerves are surrounded by a sheath of fatty protein called myelin. Myelin protects the nerves in the same way that insulating material protects an electric wire.

In MS some damage occurs to the myelin as a result of inflammation. This damage is called demyelination and it disrupts the way in which messages are carried to and from the brain. Over time, losing myelin can cause permanent damage.

People with MS often experience this inflammation as a relapse, although some inflammation produces no symptoms at all and can only be recognised on an MRI scan. Treatments that can alter the underlying processes occurring in MS are known as disease modifying therapies. These drugs dampen down the inflammatory processes that cause demyelination and relapses.

Who will be offered therapy?

The Association of British Neurologists publishes guidelines for offering treatment to people with MS.

To start treatment, an individual must:

- Be able to walk with or without assistance
- Have a confirmed diagnosis of MS, with a relapse remitting pattern, as assessed by the neurologist.
- Have active disease – two clinically significant relapses in the last two years
- Normally be over 18 (although treatment of younger people may be warranted in some cases).

- For people with secondary progressive MS, treatment is only recommended when relapses are the main cause of increasing disability.
- Treatment is not indicated for people with primary progressive MS.

What benefits can I expect from these drugs?

The disease modifying drugs have shown the following benefits in people with MS who experience relapses:

- A reduction in the frequency of relapse, by around one third, on average.
- A possible reduction in the severity of relapses (beta interferons only).
- A reduction in the number of new brain lesions as shown on MRI scans.
- A possible reduction in future disability.

These results were described in clinical trials. It is important to remember that no-one is "average": some people will do better than average, while others will do worse.

The drugs have been used in the UK since the late 90's and even longer in the USA. There is no evidence of any safety concerns around these drugs.

People who are receiving treatment may continue to experience relapses. However, they will have fewer relapses than before they started therapy and relapses may be less severe. They may be offered steroids to treat the acute relapse.

Disease modifying drugs cannot cure MS. They cannot reverse permanent MS damage.

How long will I stay on treatment?

There are no mandatory stopping criteria that apply in all cases. The following suggest that the treatment is being less effective and should help the Neurologist decide whether to stop prescribing treatment:

- Developing an increased number and severity of relapses, or lack of reduction in number of relapses, compared to one or two years before treatment started, especially if MRI scan shows new or enhancing lesions. Under these circumstances, there may be other licensed (for instance Tysabri) or trial drugs which can be considered.
- Developing non-relapsing secondary progressive MS and losing the ability to walk.

Pregnancy and breast feeding

At the moment, the effects of beta interferon and glatiramer acetate during pregnancy are not known. Animal studies of beta interferon have suggested that it might increase the likelihood of miscarriage. The effect of glatiramer acetate is unknown.

We recommend that:

- Adequate contraception is used whilst on treatment.
- For women planning to start a family, we recommend stopping treatment one month before starting to try for a baby.
- Contact your MS Nurse or Neurologist as soon as you find you are pregnant. Do not continue with treatment whilst pregnant.
- Stay off treatment until you have finished breast feeding.

For men who are on disease modifying therapy and are thinking about having a baby with their partner, we advise you to discuss this with the MS Nurse and/or Neurologist.

How often will I have to come to Addenbrooke's?

After attending the initial assessment clinic, you will be invited to return to start treatment at a further appointment. The starting treatment clinics are run by the MS Nurses and are held on a Tuesday afternoon. These appointments last up to an hour.

After that you will have shorter appointments usually held on a Thursday or Friday morning, at one month and then three monthly intervals. After the first year on treatment you will be seen at six monthly intervals, once by the Neurologist and once by the MS Nurse. You may be asked to come to more appointments if you have relapses or problems with the treatment.

If you have a local MS Nurse or Neurologist they can also advise on your condition. They will let us know if you have required steroids or are experiencing a change in your condition.

Blood samples need to be taken and reviewed for all people on beta interferon at the monitoring visits.

If you miss the required appointments for proper and safe monitoring whilst you are on therapy, the Neurologist may decide not to continue to prescribe the medication.

What are the licensed drugs for people with relapse remitting MS?

There are four medications made by different companies. The table below is a quick comparison between the four products.

	Beta Interferon 1a	Beta interferon 1a	Beta interferon 1b	Glatiramer acetate
Trade Name	Avonex	Rebif	Betaferon	Copaxone
How often is it given?	Once per week	Three fixed days per week	Alternate days	Daily
Is the syringe pre-filled?	Yes (but also available as mix bioset)	Yes	No – but easily mixed	Yes
How is it injected?	Into the muscle	Under the skin	Under the skin	Under the skin
Auto inject pen?	Yes	Yes	Yes	Yes
Common side effects: (see notes below)	Flu like symptoms,	Flu like symptoms, injection site reactions	Flu like symptoms, injection site reactions	Injection site reactions

These are rough guidelines – more information about storage will be given in the clinic.

The Neurologist may specifically advise you which drug to have; usually the choice will be left to you. You will have the opportunity to look at all the products and discuss with the MS Nurse which one would be best for you. It is possible to switch to a different drug but this is a decision that can only be made after discussion and in partnership with the Neurologist.

What are the common side effects?

Beta interferons:

- Flu-like symptoms such as headache, muscle aches, fever. These typically start a few hours after the injection and last a few hours. The severity of flu-like symptoms usually decreases in the first weeks of treatment. They can be reduced by taking over-the-counter medicine, such as paracetamol 1g (no more than 4 doses in 24 hours)
- Injection site reactions. Red patches often appear at the site of the injection, either straight away or the day following injection. These patches usually fade in time (usually one to three weeks). Injections might be temporarily painful or sting for a while afterwards.
- Changes in menstrual cycle/periods. Sometimes women notice irregular bleeding, early or late, or heavier periods. A gynaecologist should be consulted if symptoms persist or cause concern.
- Blood abnormalities indicating mild anaemia, liver function abnormalities, reduction in white blood cell count and thyroid function. Occasionally the drug may need to be stopped until blood results return to normal. Blood samples taken in clinic will check for these abnormalities.

- Mood changes. Sometimes these drugs may cause mood changes although there is no direct link with depression. If you have a history of severe depression before starting these drugs you should discuss this in clinic.
- Insomnia.

Glatiramer acetate:

- Injection site reactions. Sometimes the skin reddens at the site of the injection but this fades in time. Occasionally the skin may feel hard at the site, or a small lump may be felt.
- Repeated injections into the same areas can, in the long term cause indentations in the skin (lipoatrophy). This does not usually improve and sometimes can be permanent. Changing injection sites and good technique can minimise these risks.
- Chest tightness and palpitations. Symptoms including chest pain, breathlessness, anxiety, flushing, sweating and palpitations, usually occurring a few moments after injecting and lasting for 10 to 20 minutes. Clinical trials have shown that these are purely a reaction to the drug. These side effects are infrequent, but unpredictable.

What are neutralising antibodies?

Antibodies are proteins produced by the immune system to fight foreign substances such as infections.

Antibodies have been shown to develop in some people who take glatiramer acetate. One study suggests that these antibodies had no effect on how well people did while taking glatiramer acetate.

With the beta interferons, the body may produce what are known as “neutralising antibodies”, that is, antibodies that can reduce the clinical effectiveness of these drugs. Over the long term, this may mean people taking beta interferons receive less benefit from them and start to experience a similar number of relapses as they would have done without taking the drugs.

Neutralising antibodies are not associated with any new side effects or long term safety issues. Most people do not develop neutralising antibodies and in some people they disappear again over time. Blood samples to test for the presence of antibodies will be taken after one year of treatment with beta interferon.

Can I drive and travel while on these drugs?

There are no restrictions on driving or travelling with these drugs. You should inform the DVLA of your diagnosis of MS but you do not need to tell them that you are starting treatment.

The drugs are delivered with a cool box for travel and a sharps box to dispose of used needles. We advise that medication is carried as hand luggage as it cannot be replaced if lost and the airlines cannot guarantee storage temperatures.

The drugs should not be frozen. X-ray safe for photographic equipment is also fine for these medications.

We advise you to contact the airline before you travel and can provide a letter from the hospital to say that these are prescription medications.

Some airlines will not allow ice packs to be taken as hand luggage. Each drug company produces up to date guidance on storage requirements for their medication and the MS nurses will be able to give guidance on your particular journey.

Will I be able to switch to a tablet or infusion?

There are many trials looking at possible new drug treatments for people with MS. The process that has to be undertaken before Consultants can prescribe these in the clinic is a long one. If medications are licensed and guidance for their use has been approved by NICE, they will become available, under the agreed conditions and guidelines. You will want to discuss changes to your medication if your condition remains active whilst on existing treatment. This will occur as part of the monitoring visits to the hospital.

Once you have been seen by the consultant and decided that you wish to start therapy, (or have further questions,) please contact the MS Nurse office 01223 257160 and leave a message to confirm which medication you plan to start. The nurses, with your permission, will then arrange for the medication to be delivered to you at home and an appointment will be sent to you to start treatment. Please bring one dose of your medication with you as we do not have stock available in the clinic.



We are currently working towards a smoke-free site. Smoking is only permitted in the designated smoking areas.

For advice and support in quitting, contact your GP or the free NHS Stop Smoking helpline on 0800 169 0 169

Help with this leaflet:



If you would like this information in another language, large print or audio format, please ask the department to contact Patient Information: 01223 216032 or

patient.information@addenbrookes.nhs.uk



Document history

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