Multiple Sclerosis Trust

MS

Factsheet

Clinically isolated syndrome (CIS)

We hope you find the information in this factsheet helpful. If you would like to speak with someone about any aspect of MS, contact the MS Trust information team and they will help find answers to your questions.

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Clinically isolated syndrome

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Contents

1. What is clinically isolated syndrome?

Clinically isolated syndrome (CIS) is a term that describes a person's first episode of neurological symptoms that last for at least 24 hours and is not caused by anything else (such as a fever or infection)[1]. For some people this can be an indicator of what may turn out to be multiple sclerosis.

CIS is caused by inflammation and damage to myelin, the protective fatty substance that surrounds nerve cells in the central nervous system (brain and spinal cord). This damage (called demyelination) disrupts the way nerve messages are carried to and from the brain. This results in the symptoms experienced. The reasons why this happens are as yet unknown.

Damage may occur in one place, this results in someone experiencing a single symptom eg optic neuritis, or more than one place when multiple symptoms might be experienced eg optic neuritis and muscle weakness.

Where damage is seen in more than one area it is referred to as 'multifocal' and in only one area as 'monofocal.'

The area(s) of inflammation (called lesions) can be seen on an MRI (magnetic resonance imaging) scan of the brain and spinal cord.

2. CIS and multiple sclerosis

Not everyone who experiences CIS will go on to develop MS and for some people there may be no further symptoms. However, if MRI scans show brain lesions that are similar to those seen in MS then chances of having further episodes and ultimately a diagnosis of MS are high[2].

To make a diagnosis of MS, the neurologist is looking for evidence of two or more areas of damage to myelin in different parts of the central nervous system that have occurred at different points in time. Clinically isolated syndrome refers to isolation in time – it is just one episode of neurological symptoms. A multifocal clinically isolated syndrome is where damage may occur in two places but only at one time.

The evidence of damage to myelin may be seen clinically – as an episode of neurological symptoms lasting more than 24 hours - or on an MRI scan. This does allow for a diagnosis of MS to be made on the basis of one clinical episode if an MRI scan shows evidence of a previous attack[3,4].

Of people who are eventually diagnosed with MS, 85% a clinically isolated syndrome[5,6] .

3. Diagnosis of CIS

A neurologist will make the diagnosis of clinically isolated syndrome. There is no one examination or test that can be used to diagnose CIS and the process involves ruling out other possible causes of the symptoms. Medical history and clinical examination are important.

Medical history

Sometimes an earlier episode of symptoms, such as numbness which might have been treated without thought at the time, can prove significant as it could suggest a first episode of neurological symptoms and consequently a diagnosis of MS.

- Neurological examination

There are a number of simple tests that a neurologist can carry out that can suggest or rule out a cause of symptoms. These include checks on movement, coordination, vision, balance, reflexes and other functions of the senses. Information from these tests suggest whether someone might have CIS and where in the central nervous system damage has occurred.

- Blood tests

These may be used to identify or rule out any other potential causes for the symptom(s). At the present time there is no blood test that can be used to diagnose either MS or CIS.

- MRI scan

The most common investigation is a scan of the brain and/or spinal cord using MRI. This scan can detect the tiny scars or lesions caused by demyelination which show up as little white patches. Sometimes a dye called gadolinium is injected into a vein before the scan as it can help the radiologist and neurologist distinguish between active areas of inflammation and any previous areas of scarring that might exist.

The areas where this damage is most frequently seen are the optic nerve, the spinal cord, and the brainstem.

4. Risk of developing MS

There is no single test that can conclusively determine whether someone who experiences clinically isolated syndrome will go on to develop MS. Many factors have been investigated including environmental factors such as levels of vitamin D[9], clinical signs and MRI. Of these, MRI findings are the most useful tool to determine risk of conversion to MS.

- Lesions on MRI

The presence of one or more lesions shown on MRI demonstrates areas of demyelination and is associated with a higher risk of experiencing a further attack and developing clinically definite MS. Studies [2,10,11] have shown that long-term risk for developing clinically definite MS is 20% when the scan shows only the lesion associated with the CIS lesion itself but is 60-80% where other lesions are present on MRI[1].

- Presence of oligoclonal bands on lumbar puncture

This has found to be less useful as a predictive tool than MRI and is not routinely carried out in cases of CIS. A lumbar puncture, is a test where a small amount of the fluid which surrounds the brain and spinal cord is extracted. This is analysed in the laboratory and if more protein bands are seen than usual (called oligoclonal bands) this can be suggestive of higher risk of conversion to MS[12,13].

- Clinical Features

Several types of symptoms experienced during a CIS have been suggested as associated with increased risk of converting to MS. Sensory symptoms, such as numbness, tingling, or visual problems, are thought to be associated with a lower risk of developing MS compared to symptoms that affect movement such as weakness[1].

5. Symptoms you might experience

Common symptoms experienced by someone with CIS include:

- Optic neuritis

Optic neuritis is caused by damage affecting the optic nerve which transmits images from the retina at the back of the eye to the brain. It can occur suddenly or over a period of hours. Optic neuritis commonly causes blind spots or areas of poor vision surrounded by an area of normal vision. Colour vision can also be severely affected. Often there is pain, particularly during eye movement.

- Transverse myelitis

Transverse myelitis occurs when there is damage affecting the spinal cord. The onset may be sudden - developing over one to two hours, or more gradual - over one to two weeks. The area of spinal cord damaged will determine what symptoms are experienced and which parts of the body are affected. Common symptoms include muscle weakness, abnormal sensations in the toes and feet such as numbness or tingling, and bladder and bowel problems.

Lhermitte's sign (sometimes referred to as barber's chair syndrome) is a sudden sensation resembling an electric shock that passes down the back of the neck and into the spinal column and can radiate out to the fingers and toes. It is usually triggered by flexing the neck that is, bending your head down, chin towards chest and is associated with lesions at the top of the spinal cord.

- Brainstem syndrome

A brainstem syndrome occurs when there is demyelination of nerves found in the brainstem - the area at the base of the brain that connects to the spinal cord. The brainstem controls basic functions such as breathing, heart rate and blood pressure. Symptoms commonly experienced during a brainstem syndrome include nausea, vomiting and double vision, but symptoms will vary depending on the specific areas affected.

6. Treatment of CIS

Many CIS episodes are mild and resolve of their own accord over a period of weeks. However when symptoms are more severe, for example visual loss and pain in optic neuritis or vertigo where there is a brainstem lesion, high dose steroids may be prescribed. These may be given either as a pill or through a drip, but only for a few days. This can speed up recovery, however, the amount that of recovery will be the same with or without steroid treatment[7,8].

Where it is necessary, treatments for specific symptoms may also be prescribed.

7. Can treatment delay onset of MS in people at high risk?

Research has shown that early treatment of clinically isolated syndrome with disease modifying drugs such as beta interferons[14,15,16] (Avonex, Rebif, Betaferon,Extavia) and glatiramer acetate[17](Copaxone) can delay conversion to MS in people at high risk [18].

These drugs are available for prescription on the NHS in England and Wales. The 2009 Association of British Neurologists (ABN) prescribing guidelines state that neurologists may consider the use of beta interferon or glatiramer acetate for people within 12 months of a clinically isolated syndrome when MRI evidence predicts a high likelihood of recurrent episodes[19]. This is reinforced by the NHS England Clinical commissioning policy on disease modifying therapies for people with MS[20].

More recent studies suggest that teriflunomide (Aubagio) shows similar results [21].

- Making a decisions about treatment

As there is no conclusive way of knowing whether someone will go on to develop MS after experiencing a clinically isolated syndrome, making decisions about treatment can be difficult. There is chance that someone might have treatment when they would never experience another episode. This must be weighed against the benefit of early treatment in delaying conversion to MS when the risk is high.

It is essential to understanding both the benefits and the potential side effects associated with disease modifying therapy and the need for long-term continuous treatment.

Conversations with your neurological team, asking questions and getting all the answers you need are vital.

Key questions can be helpful:

1. What are my options?
2. What are the pros and cons of each option?
3. How do I get support to help me make a decision that is right for me?

8. Living with uncertainty

For people who experience clinically isolated syndrome, the uncertainty can a cause of anxiety, fear, confusion, and even anger. It can feel frustrating that medical professionals can’t say what to expect in the short and longer term.

However, having access to reliable information so that you are fully informed about the condition and in a good place to make the decisions right for you is important. In some areas MS Specialist nurses are available to support people diagnosed with CIS.

9. Find out more

- Publications from the MS Trust

Disease modifying therapies: what you need to know - a book for people who may be considering treatment with one of the disease modifying drug therapies. It aims to provide an understanding of how the drugs work and affect MS, and help readers have informed discussions with their health team about the treatment options.

Making Sense of MS – introductory information that may be helpful if you have been recently diagnosed with MS. This resource can support you to learn about MS, the lifestyle and treatments which can help and the health professionals who will support you.

MS Explained - a book for anyone who wants to understand the mechanisms of MS and what causes symptoms to occur. It describes the immune system and the central nervous system and then explains how MS is thought to cause them to malfunction and the symptoms that result

Publications for people with MS from the MS Trust – list of all publications on managing various aspects of MS and symptoms

- MS Trust information service

If you have any specific questions about CIS or any aspect of MS contact our team of information officers on 0800 032 3839 or 01462 476 700, email infoteam@msturst.org.uk.

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