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Guillain-Barré syndrome: Could corticosteroids help or delay recovery?



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Guillain-Barré syndrome (GBS) only affects 1 or 2 out of 100,000 people, but it can be severe and frightening. Although it is more common in older people, it also happens to young people. At first, GBS causes tingling and numbness in the limbs. This can progress very quickly to extreme weakness, so that people are often no longer able to walk. It can affect the face and ability to swallow too, and up to a quarter of those affected will need a ventilator to help them breathe. For most people, though, GBS is much milder.

Many people recover fully within a few weeks or months, but it can be fatal. Although the syndrome will have got to its worst stage within four weeks, full recovery could take months. About 1 in 10 will have severe permanent disabilities (10%).

GBS is usually triggered by a viral infection, but sometimes it happens after vaccination or surgery. It is not known for certain why some people get GBS. It is thought to be an auto-immune response. That is, the body's protection or immune system turns against the body's own nervous system instead of against the virus or vaccine that has entered the body.

Treatment options for Guillain-Barré syndrome

There is no known cure for GBS, but several treatments are used to try to help people recover more quickly. The most common treatments are plasma exchange, immunoglobulin therapy and corticosteroids (such as prednisolone).

Immunoglobulins are antibodies (proteins) in the blood. Immunoglobulin therapy involves the use of a solution made out of the blood plasma of healthy people. The procedure is similar to a blood transfusion. This can help people to recover from GBS more quickly, although it is not known exactly why it helps.

Plasma is the fluid in the bloodstream. Plasma exchange involves removing fluid from the bloodstream and replacing it with other fluid. This aims to reduce the amount of abnormal antibodies that are circulating in the blood and damaging the nervous system.

Corticosteroids are medications that can reduce

inflammation. When a person has GBS, their nerves have become inflamed. So theoretically, corticosteroids might reduce the nerve damage. However, corticosteroids can also have adverse effects. For example, having corticosteroids can increase the chances of getting an infection.

Research on corticosteroid therapy

To find out whether corticosteroids speed up recovery and reduce the effects of GBS, researchers from the Cochrane Collaboration analysed clinical trials of this treatment. The Cochrane Collaboration is an international network of researchers who systematically review trials that test the benefits of health care interventions. They found 8 trials. Only 6 of these trials measured disability in a way that could help answer important questions about the usefulness of corticosteroid therapy for patients. You can [click here](http://www.gesundheitsinformation.de/evidence-based-medicine) (URL: <http://www.gesundheitsinformation.de/evidence-based-medicine>) to read about why it is important to carry out trials in a particular way to find out whether a medical intervention helps. The 6 trials that were included in the analysis involved over 580 people with GBS.

After a year the people who had corticosteroids did not have less disability than people who took a dummy drug (placebo) or had immunoglobulin therapy only. Serious adverse effects from short courses of corticosteroids were not common, although people who had corticosteroids might have been a bit more likely to develop diabetes. There was some evidence that giving corticosteroids into the veins (intravenous therapy) along with immunoglobulin therapy in the early weeks might have a short-term benefit, but more research is needed to be sure.

The researchers found that corticosteroids might actually delay recovery when taken as tablets. More research is needed to be sure about this as well, though. One possible reason could be that, while early intravenous treatment might have some benefit in the acute phase of inflammation, tablets are usually taken over longer periods of time, and perhaps they start to do some unknown kind of harm after a while. It is theoretically possible, for example, that while the corticosteroids have a beneficial effect on the inflammation of the nerves, they could have a different effect on the muscles. The researchers concluded that immunoglobulin therapy can improve symptoms 4 weeks after GBS, but it is not certain that adding corticosteroids to the treatment will help.

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Glossary

Cochrane Collaboration

The Cochrane Collaboration is an international network of thousands of researchers and others. They work together in teams called Cochrane Review Groups to answer questions about health care by doing systematic reviews of evidence. To achieve this, the members of the Collaboration have developed systems and methods for systematically finding and analysing the results of trials of health care interventions. The goal of the Cochrane Collaboration is to help patients, health care practitioners and others make more informed decisions about health care. You can read more about the Cochrane Collaboration at their website.

evidence

Evidence is what we call scientific proof from well-conducted, good-quality scientific trials that have been carefully designed to answer specific questions. Depending on the types of questions, different scientific research methods (types of study) are most appropriate to find reliable answers to these questions. Randomized controlled trials (RCTs), for example, are the best way to get reliable evidence on the effectiveness of medical treatments (interventions). This type of study, however, is not the best form of evidence for all possible questions, and does not provide the best answers to all kinds of questions, either. Epidemiological studies, for example, are very suitable for establishing well-founded proof for the spreading of a disease in the population.

infection

In medicine, we speak of an infection when a person has caught a germ (an infectious agent). This germ can be a bacterium, a virus, a fungus or a worm. The germ multiplies and then either spreads throughout the body or only attacks one particular organ. As long as there are no signs of a disease, this is called an asymptomatic infection. When the body shows a reaction to the germ in the form of symptoms, this is called a symptomatic infection (an infectious disease). The period between the moment the germs enter the body and the moment the first symptoms of the disease appear, is called the incubation period. It may last a few hours or days, or even many years. An infection does not necessarily have to lead to the onset of a disease.

vaccination

Vaccination involves stimulating the body's production of antibodies to a particular virus or bacteria, so that the person has increased resistance if they are exposed to the real infection. A vaccine aims to launch the body's defence system, without actually causing the disease. Depending on the vaccine, it could take some time after vaccination to develop immunity. With most vaccines, more than one vaccination is needed. Sometimes the immunity from a vaccine lessens over time. That means there are some types of vaccination that need be repeated after a few years to stay active. There are several types of vaccines. Some vaccines are "inactivated" or "killed", which means that even though they are made from a virus, for example, no "live" part of the virus remains. That means the vaccine itself cannot cause infection. Other vaccines are "live attenuated vaccines". This means that the virus has been made so much less infective than the real virus, that it should not be able to cause symptoms.

immune system

The immune system is the body's defense system and its task is to protect the body against germs or degenerated cells (like cancer cells). The immune system is very complex and has not been understood in every detail yet. There are two components: the cellular immune defense (for example "scavenger cells" and "killer cells") and the complement system ("antibodies", for example).

virus

Viruses are germs that enter living cells (plant, animal or human cells) to multiply. Viruses cause illnesses and diseases such as smallpox, influenza, colds, hepatitis, herpes and AIDS.

inflammation

An inflammation is a (defense) reaction of the body to an injury, irritation or infection. More blood is brought to the respective body part to protect the body. This is why this body part feels warmer, becomes swollen and red and is usually more sensitive. If the inflammation affects the mucous membranes, they secrete more fluid than usual. This helps to wash out the germs that have entered.

Sources

IQWiG health information is based on research in the international literature. We identify the most scientifically reliable knowledge currently available, particularly so-called “systematic reviews”. These summarise and analyse the results of scientific research on the benefits and harms of treatments and other health care interventions. This helps medical professionals and people who are affected by the medical condition to weigh up the pros and cons. You can read more about systematic reviews and why these can provide the most trustworthy evidence about the state of knowledge here (URL: <http://www.gesundheitsinformation.de/evidence-based-medicine.61.en.html>) . The authors of the major systematic reviews on which our information is based are always approached to help us ensure the medical and scientific accuracy of our products.

Hughes RAC, Raphaël J-C, Swan AV, van Doorn PA. Intravenous immunoglobulin for Guillain-Barré syndrome. *Cochrane Database of Systematic Reviews* 2006, Issue 1. [Cochrane summary (URL: <http://www.cochrane.org/reviews/en/ab002063.html>)]

Hughes RAC, Swan AV, van Koningsveld R, van Doorn PA. Corticosteroids for Guillain-Barré syndrome. *Cochrane Database of Systematic Reviews* 2010, Issue 2. [Cochrane summary (URL: <http://www.cochrane.org/reviews/en/ab001446.html>)]

The German Institute for Quality and Efficiency in Health Care (IQWiG)

The German Institute for Quality and Efficiency in Health Care (IQWiG) was established by legislation to provide evaluations of the effectiveness, quality and efficiency of healthcare services. This includes the assessment of medicines as well as the publication of health information for consumers and patients.

Evidence basis of our health information

Our information is based primarily on systematic reviews of the effects of health care. Systematic reviews are necessary to gain an objective picture of health care. In order to do this, a clear question is formulated. Researchers then find all the relevant studies that could answer this question. They then evaluate those studies.

You can find a list of the evidence and other scientific literature on which this information is based at [**www.informedhealthonline.org**](http://www.informedhealthonline.org)

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