

## Guillain-Barré Syndrome (GBS)

### What is Guillain-Barré syndrome?

Guillain-Barré syndrome is an inflammatory disorder of the peripheral nerves (nerves located outside the brain and spinal cord) which are attacked by the body's own immune system. It is characterized by rapid and progressive muscle weakness. It affects nerves that signal muscles to contract and may impair one's ability to walk, write, breathe, talk, etc. In GBS, the damaged nerves are unable, to varying degrees, to perform their functions correctly.

### Who can be affected by Guillain-Barré syndrome?

This disorder can affect anyone. It can occur at any age and to persons of either sex. The incidence tends to increase with age, so that GBS is most common in people who are 50 to 80 years old. It is considered a rare disorder, with an incidence of approximately 2-3 cases per 100,000 people per year.

### What causes Guillain-Barré syndrome?

In Guillain-Barré syndrome, for reasons that are currently unknown, the body's immune system begins to attack the body itself. In this case, the focus of the attack is the myelin sheath that surrounds the axons of nerve cells and sometimes, the axons themselves.

GBS can develop over a period of hours, days or weeks. GBS most often follows a viral or bacterial infection, but pregnancy, surgery or vaccinations may trigger the disorder in rare instances.

### What are the symptoms of Guillain-Barré syndrome?

Initial symptoms may be abnormal or decreased sensations in the lower limbs which progress to numbness and tingling. Many people experience severe back pain. Weakness in the legs and arms affects both sides equally. It is this symmetrical weakness that helps differentiate GBS from other disorders. Other common complaints include muscle aching and cramping, shortness of breath and bilateral drooping (palsy). Severity of symptoms can vary greatly from person to person. Some people experience symptoms that are so mild, individuals may not even seek medical attention. In other cases, affected persons may experience profound weakness and almost complete paralysis, including the muscles of respiration.

Emotional reactions are commonly experienced due to the sudden onset of symptoms, the degree of disability and the level of dependence that may accompany this disorder. People affected with GBS need clear and honest explanations about the disease and what is happening to them. If they are unable to speak, efforts to help them communicate will likely ease the frustration they may be experiencing. Moral support throughout the course of the disorder is of utmost importance.

## How does Guillain-Barré syndrome progress?

The onset of symptoms is rapid, progressing steadily for a period of days to weeks. The symptoms will then stabilize at this level for a period of days to weeks to even months. The next phase, known as the recovery phase, is also variable among affected persons. This phase may last from a few weeks to months. At the end of the recovery phase, individuals may experience complete recovery from the disorder, or they may experience some degree of weakness that does not resolve.

## How is Guillain-Barré syndrome diagnosed?

Diagnosis can sometimes be difficult. This is especially true in the early stages because of the variability from one person to another of both the symptoms and the severity of those symptoms. As well, several other disorders have similar symptoms that may be mistaken for GBS.

A detailed history is the first step to diagnosis, followed by a complete physical examination. A nerve conduction velocity test can alert the physician to slowness of signals traveling along the nerve pathways. A spinal tap may be done to examine the cerebrospinal fluid for abnormalities. Reflexes are often absent in GBS, so careful testing of the reflexes is useful. Lastly, muscle strength testing will evaluate muscle weakness.

## Is there a treatment or cure for Guillain-Barré syndrome?

Guillain-Barré syndrome is self-limiting. There are treatments available that may lessen the severity of the disorder and speed up the recovery.

Plasmapheresis is a treatment that is commonly used. Whole blood is removed from the body and red and white blood cells are separated from the plasma. The blood cells are then returned to the body. The plasma portion of the blood that is removed is thought to contain elements that play a part in the improper functioning of the immune response. Plasma-pheresis tends to reduce the severity and duration of the symptoms for reasons that are not totally understood. It is found to be most beneficial when used early in the course of the disorder.

High doses of immunoglobulin are administered intravenously (IVIG) to patients in another treatment for GBS aimed at decreasing the severity of the symptoms. It is now felt to be as beneficial to patients with GBS as plasmapheresis and because it is easier to give, it is often the treatment of choice. The immunoglobulin therapy is thought to alter the immune response and prevent the attack on the nerves.

Assisted ventilation is required in severe cases of GBS where the respiratory system is affected. This ensures proper functioning of a patient's lungs and airway during the acute and recovery phases of the illness.

Occupational therapy is a valuable part of the treatment program in the rehabilitation stage of the illness. Exercises to strengthen arms and hands are used and many activities of daily living are relearned with the help of an Occupational Therapist.

Physiotherapy is a key treatment approach throughout the course of the illness to keep muscles of the lower limbs flexible and to maintain function. Passive exercises are employed during the most serious phase of the illness, followed by more active participation as affected individuals begin to recover strength and function. If necessary, assistive devices may be prescribed for support and balance.

### What is the prognosis?

In up to 90% of cases, the prognosis for recovery of all or most functions is relatively optimistic. The length of time and the amount of effort required to bring about the best possible recovery varies among individuals and is related primarily to the severity of the symptoms. About 30% of persons affected with GBS have some degree of residual weakness after three years. 3 - 5% may suffer a relapse many years later. 1- 5% of cases are fatal, usually due to respiratory or cardiac complications. Most people, however, are able to recover completely and lead normal lives.

### What about research?

Researchers are continuously searching for new treatments for GBS. As well, they are studying current treatments such as plasmapheresis and IVIG to discover how effective they are and also to try and overcome side effects associated with them.

Scientists are also studying the immune system to figure out exactly how and why GBS occurs and what it is that activates the immune system inappropriately.

### How can I help?

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