This information sheet may help you understand how well IV (intravenous) immunoglobulin (Ig) works for treating certain neuromuscular disorders. These are disorders of the nerve and muscle.

Neurologists from the AAN are doctors who identify and treat diseases of the brain and nervous system. The following evidence-based information* is provided by experts who carefully reviewed all available scientific studies on use of IVIg for treating certain disorders of the nerve and muscle.

**What is IV immunoglobulin?**

IV immunoglobulin is a blood product given by injection. It also is known as IVIg. It has immunoglobulin G (IgG), which is an antibody. Antibodies are blood proteins in the immune system. They fight infection from bacteria or viruses. They also attack other foreign objects in the body. The antibody used in IVIg comes from plasma, which is the liquid part of blood. The plasma comes from blood donors. During treatment, the IVIg fluid is injected into a vein with an IV needle.

IVIg often is used to treat problems with the immune system. These problems can involve inflammation in the body. This can be linked to some disorders of the nerve and muscle. When injected, IVIg can reduce the inflammation. Experts believe that this helps treat the disorder. Talk with your doctor about the benefits and risks of IVIg treatment.

**According to the research, in what nerve and muscle disorders is IVIg treatment helpful?**

**Inflammatory Demyelinating Polyneuropathies**

Research shows that IVIg can help treat inflammatory polyneuropathies. These are disorders caused by the immune system attacking the body. They typically affect the nerves in the legs and arms. However, other nerves in the body also can be affected. The person experiences tingling, numbness, and muscle weakness. In severe cases, the person can become paralyzed.

IVIg often is used to treat Guillain-Barré syndrome (GBS). In GBS, the immune system attacks part of the nervous system. This leads to inflammation. When the nerves become inflamed, muscle weakness can occur. Strong evidence shows IVIg helps treat GBS in adults. There also is strong evidence that IVIg works as well as plasma exchange for treating GBS. High-quality studies are not available on IVIg use in children with GBS. However, because IVIg is effective for GBS in adults, one can assume it also may help children. There is not enough evidence to know the best IVIg dose to use.

Chronic inflammatory demyelinating polyneuropathy (CIDP) is the chronic counterpart of GBS. For CIDP, there is strong evidence that IVIg is helpful as long-term treatment. There is not enough evidence to know the best IVIg dose to use. There also is not enough evidence to know how often to use IVIg or for how long. Some experts believe IVIg might be overused as long-term therapy for CIDP.

**Multifocal Motor Neuropathy**

Multifocal motor neuropathy (MMN) is a rare muscle disorder. It often begins with muscle weakness in the hands. It then may spread to other muscles. Typically, the muscles affected on one side of the body differ from the muscles affected on the other side. The person may have muscle wasting and cramping. In addition, the leg muscles will twitch and contract. The symptoms tend to progress over time. When diagnosed early, MMN can be treated effectively. However, it is often a chronic condition.

Moderate evidence shows IVIg can help treat MMN. There also is not enough evidence to know how often to use IVIg or for how long.

**Myasthenia Gravis**

Myasthenia gravis (MG) is a disorder that affects how certain nerves communicate with muscles. It affects voluntary muscles, which are the ones that a person can control. In MG, the affected nerves do not communicate well with the muscles they control. This leads to muscle weakness. MG occurs because of problems with the immune system. It is unclear what causes these problems. However, they can be related to the thymus (part of the immune system). In this case, the thymus is sometimes removed in surgery.

In rare cases, MG can become life-threatening. The muscles used for breathing may become weakened. This can cause severe breathing problems. It also can result in lung failure. The person may need a breathing machine.

Moderate evidence shows IVIg can help treat moderate or severe forms of MG. There is not enough evidence to know if IVIg helps in milder forms of MG. It is important to weigh the benefits and risks of using IVIg to treat mild MG.
Lambert-Eaton Myasthenic Syndrome
Lambert-Eaton myasthenic syndrome (LEMS) is a disorder that affects communication between nerves and muscles. As in MG, muscle weakness occurs in LEMS. However, the muscle weakness can improve at times. Weak evidence shows IVlg may help treat LEMS.

Dermatomyositis
Dermatomyositis is a muscle disorder that involves inflammation and skin rash. Symptoms include muscle weakness, soreness, and stiffness. The person may also have trouble swallowing or breathing. Weak evidence shows IVlg may help adults with dermatomyositis that does not respond to other therapies.

What does the research say about other nerve and muscle disorders?
At this time, there is not enough evidence to show if IVlg helps treat the following disorders:
• Diabetic radiculoplexoneuropathy
• Immunoglobulin M paraprotein
• Inclusion body myositis
• Miller Fisher syndrome
• Polymyositis
• Postpolio syndrome

Is IVlg safe to use? Are there side effects associated with it?
Many people seem to tolerate IVlg therapy. However, there is an increased risk of the following serious side effects:
• Aseptic meningitis, a condition that causes swelling around the brain and spinal cord
• Blood clotting
• Heart attack
• Heart failure
• Kidney failure
• Urticaria (hives)

These occur only in rare cases. It is important to work with a doctor when deciding whether to use IVlg for a nerve or muscle disorder.

Better studies are needed on the use of IVlg for treating nerve and muscle disorders. More research also is needed on how much IVlg to use, and how often and for how long.

Based on a guideline endorsed by the American Association of Neuromuscular and Electrodiagnostic Medicine

This statement is provided as an educational service of the American Academy of Neurology. It is based on an assessment of current scientific and clinical information. It is not intended to include all possible proper methods of care for a particular neurologic problem or all legitimate criteria for choosing to use a specific procedure. Neither is it intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on all of the circumstances involved.

*After the experts review all of the published research studies, they describe the strength of the evidence supporting each recommendation:
Strong evidence = more than one high-quality scientific study
Moderate evidence = at least one high-quality scientific study or two or more studies of a lesser quality
Weak evidence = the studies, while supportive, are weak in design or strength of the findings
Not enough evidence = either different studies have come to conflicting results or there are no studies of reasonable quality

©2012 American Academy of Neurology

Copies of this summary and additional companion tools are available at www.aan.com or through AAN Member Services at (800) 879-1960.