

Patients with high blood pressure and/or heart, lung, or kidney disease may experience a worsening of blood pressure or an accumulation of fluid in the body leading to shortness of breath or chest discomfort. Proper choice of dose and infusion rate should minimize this risk.

### What other risks are there?

Being a human product made from blood donations by many people, IVIG can transmit disease. *IVIG available in the United States is very carefully screened to be free of all known transmissible diseases*, including HIV, hepatitis, malaria, syphilis, and many, many others. However, as with blood transfusions, there is always a risk that the product contains an infection that has not yet been recognized – either because it is a previously unknown disease or because a donor’s infection was in such an early stage that his or her blood gave no clues.

To put this in perspective, American blood products are the safest in the world. Very, very few people have ever gotten an infection from IVIG. However, in the past 30 years, IVIG has been temporarily removed from the market three times – each time to test it for a newly recognized disease (HIV, hepatitis C, “mad-cow disease”) that had not been excluded before the IVIG had been released to the public. In fact, IVIG did not carry these diseases and no one actually got sick because of having received IVIG. However, no one can guarantee that a new disease will not appear tomorrow that has not yet been tested for.

### How does IVIG work?

It is not clear how IVIG works. There are several theories.

- Most physicians believe that IVIG likely sends a signal to an immune system that is in

overdrive to slow down. Thus, it may shut down autoimmune diseases like ITP, polymyositis, vasculitis, and others.

- It may provide antibodies, present in the blood of normal donors, that the patient lacks.
- Another theory is that IVIG supplies a decoy target for an overactive immune system to attack. Thus it diverts the abnormal immune system from the body’s normal organs.

Whichever theory is correct, it is undeniable that IVIG does work. *For many patients, IVIG is the safest and most easily tolerated treatment available.*

IVIG is infused in the transfusion unit at Hospital for Special Surgery.

## Hospital for Special Surgery

Barbara Volcker Center for  
Women and Rheumatic Disease

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# INTRAVENOUS IMMUNOGLOBULIN (IVIG)

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**Barbara Volcker Center  
for Women and  
Rheumatic Disease**

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## What is IVIG?

Intravenous immunoglobulin (IVIG, also called intravenous gamma globulin or IVGG) is a product derived from human blood that has been pooled from many donors. Plasma from approximately 1,000 to 10,000 persons is present in each unit or “lot” of IVIG. The active ingredient is immunoglobulin G (also known as IgG or gamma globulin).

*IgG is one of five types of antibodies normally made by the body to fight infection.* (The other four types, for historical reasons not named sequentially, are IgM, IgA, IgD, and IgE.) Each of the antibody types has a special role to play in the body. IgG is the long-lasting antibody that maintains control over infections – after the body has fought its initial, messy battles with invading bacteria or viruses. A small but important part of an otherwise normal population is born without IgA, a potential roadblock for treatment with IVIG (see below).

## What is IVIG used for?

IVIG is approved by the FDA for use in the treatment of the following diseases: Kawasaki disease, dermato/polymyositis, idiopathic thrombocytopenic purpura (ITP), Guillain-Barre syndrome, polyneuropathy, some viral diseases, and some forms of immune deficiency. IVIG is often the first treatment choice for patients with Kawasaki disease or ITP. For other diseases, it is used after other forms of treatment have failed.

In addition, IVIG appears to work in patients with systemic lupus erythematosus, antiphospholipid syndrome, vasculitis, multiple sclerosis, myaesthesia gravis, and a wide range of other diseases

characterized by abnormal immunity. In these cases, particularly because IVIG is very expensive, it is usually necessary to obtain approval from your insurer before the drug can be prescribed. (Again, IVIG is usually used in these diseases only after other forms of treatment have failed.)

## How is IVIG given?

*IVIG is given intravenously (dripping liquid slowly through a vein) over several hours.* The treatment is usually repeated for 2 to 5 days. Further, it may be repeated at 1 to 3 month intervals until a satisfactory response is obtained.

Body weight and specifics of illness determine the actual dosage. For instance, a common dose regimen is 0.2-0.4 grams of IVIG per kilogram of patient weight for 4 consecutive days, to a total of 2 grams/kilogram (0.7 grams/pound). For a 144 pound person (the typical 70 kilogram man), this would translate to 140 grams, dissolved in salt water.

The infusion time will also vary depending on the amount given per day and the person’s tolerance. Your infusion rate will start slowly and gradually increase over the course of the infusion. A typical infusion of IVIG can take several hours.

## Who should not take IVIG?

Persons born without IgA (one of the 5 immunoglobulins) are very likely to develop an allergic reaction to IVIG, which contains a small amount of IgA; generally, such persons cannot be treated with IVIG. Even persons with normal amounts of IgA can develop an allergic reaction to IVIG and may not be able to take the product.

A simple blood test done before the infusion will determine if you do not have IgA.

When IVIG is flowing into a vein, it puts a moderately severe strain on the heart, lungs and kidneys. It has to be given very cautiously to people who have problems with these organs. For this reason, IVIG can be given only in an infusion unit or in a hospital where you will be monitored.

IVIG will prevent vaccinations from “taking.” So, if possible, you should not receive IVIG within a month following an immunization. And immunizations should not be given for at least 1 month – preferably 3 months – after a course of IVIG.

## What side effects can I expect?

It is fairly common for patients to experience headache (which can range from mild to severe), a stiff neck, and sometimes fever, during or shortly after an infusion. (This is called aseptic meningitis syndrome.) These symptoms can be minimized or prevented by infusing IVIG very slowly. If they occur during the infusion, slowing the infusion rate is often sufficient to make them go away. Patients often feel fatigued on the day after the infusion.

*Sometimes physicians not familiar with the use of IVIG may mistake the headache for infectious meningitis, which it is not.* So it is important that any other physician who is treating you – and who may be concerned about new symptoms – consult with the physician who is prescribing your IVIG. The physician who is prescribing your IVIG will be fully informed about its possible side effects and how to handle them.