The University of Utah
Department of Neurology
Neuromuscular Program

Intravenous Immunglobulin (IVIG)

There are a number of neurologic disorders that are caused, in part, by abnormalities of the immune system. These disorders can be treated by medications that act to dampen the immune system and reduce damaging effects. Intravenous immunglobulin (IVIG) has been used to treat some of these disorders. Immunglobulins are proteins in the blood that are also termed "gamma globulins". They consist of antibodies which are proteins made by the immune system. Antibodies are designed to provide immunity to foreign organisms that might infect an individual and cause disease. Therefore, antibodies must recognize foreign substances and attack them and participate in their destruction. For each new foreign substance there is a unique antibody. Over the course of our lives we are exposed to many thousands of foreign substances and consequently we have many thousands of different antibodies. When a new substance enters the body, a new antibody is made; when that substance is no longer present, the level of that antibody falls to a low, reserve level. We have therefore a large number of reserve antibodies in the blood waiting for the return of their particular foreign substance. It is the collection of these reserve antibodies that are called "immunglobulins".

There are a number of diseases in which the immune system mistakes parts of our body as foreign, and our own antibodies attack organs in our bodies. These diseases are part of a class of "autoimmune" diseases. For some diseases it is known which antibodies are involved in the damage, and for others it is known only that antibodies are involved in some way. It is not clear exactly how IVIG works. IVIG is given to people with some autoimmune diseases because it is felt that the extra antibodies can block the attacking antibodies or slow the rate of the formation of antibodies by the immune system.

IVIG is prepared for use in humans by collecting blood from over a thousand donors and pooling the gamma globulin component. Since each individual has thousands of different antibodies, the pooled antibodies will represent millions of different types. Serum from donors is collected, processed and prepared for use under strict guidelines. All donors undergo the same screening that a regular blood donor would go through. In addition, during the processing immunglobulins are exposed to various chemicals. The effect is that essentially all viruses - including the AIDS virus and hepatitis viruses - are eliminated either at the donor screening or during the processing. There have been no reported cases of AIDS transmitted from IVIG, and the preparation is felt to be safer than a blood transfusion.

IVIG is administered by vein. It is infused over a several hour period. The infusion is painless. There are rare and minor reactions that may occur in less than 10% of people. These include flushing, headache, fever, chills, shakes, nausea, sweatiness and anxiety. Most of these effects are mild and appear to be related to the rate of infusion of IVIG. Therefore, they tend to all disappear if the rate is slowed down. Infusions are usually given daily and the number per treatment varies from one to five. They can be given as an outpatient, and usually arrangements can be made to have them given near or even in your home.