ADMINISTERED I.V., immune globulin (IGIV) can help treat or prevent certain diseases when the patient's own immune system isn't up to the task. Immunoglobulins, or antibodies, come in five forms, each with its own structure and function. All five immunoglobulins are contained, in varying amounts, in commercially prepared IGIV.

The approved indications for IGIV vary by brand, but in general IGIV is approved for primary immunodeficiencies, immune-mediated thrombocytopenia, Kawasaki syndrome, hematopoietic stem cell transplantation in patients older than 20 (Gamimune N only), B-cell chronic lymphocytic leukemia, and pediatric HIV type 1 infection. However, up to 70% of patients who receive IGIV are given it for an off-label indication, such as myasthenia gravis.

How IGIV works
Immune globulin confers passive immunity through antibodies present in the pooled donor plasma that goes into IGIV products. Donors are thoroughly screened, and the product undergoes viral inactivation processes to reduce the recipient's risk of infection.

Although it’s not entirely clear how IGIV works to bolster immunity, experts propose several theories:
• Because it’s derived from healthy donors, IGIV may provide antibodies that are absent in immunocompromised patients.
• Administering IGIV may signal an immune system that’s in overdrive to slow down, decreasing autoimmune activity.
• In patients with autoimmune disorders, IGIV may also provide a decoy target for the overactive immune system to attack, thus sparing the patient.

Administering IGIV
Reconstitution, storage, and administration protocols vary by IGIV product, so follow the manufacturer’s instructions. Regardless of brand, IGIV should be administered through a dedicated I.V. line. Never combine two brands of IGIV and don’t mix IGIV with other medications or piggyback it into other infusions.

Some lyophilized products must be reconstituted before you administer them. Because some brands of IGIV are stable in solution for only 2 to 3 hours, don’t reconstitute the solution until after you’ve established I.V. access and you’re ready to administer it. When you reconstitute the product, let the diluent dissolve the powder, then gently swirl the vials or roll them between your palms to admix the solution. (Don’t shake the vials, which could damage the proteins.)

If I.V. tubing is included with the product packaging, use it to administer the IGIV infusion. Some formulations also require filtration; the product instructions will specify the size filter to use.

Before administering the infusion, review the product instructions, infusion procedure, indications for therapy, adverse reactions, and steps to take if complications occur. Tell the patient to alert you if he feels anything unusual during the infusion, such as flushing or shortness of breath.

Anaphylactic reactions are rare, affecting fewer than 5% of patients. If ordered, premedicate the patient with diphenhydramine, acetaminophen, or methylprednisolone sodium succinate to reduce risks.

Because IGIV is a fairly concentrated solution, infuse it through a large vein and a small catheter to achieve adequate hemodilution or use a central line. Patients who need lifetime infusion may benefit from an implanted port.

Assess the patient’s heart and lung sounds and obtain baseline vital signs before beginning the infusion. Have an emergency drug kit and airway equipment at the bedside.

The initial IGIV infusion is usually given at the lowest concentration to assess the patient’s tolerance for the therapy. More concentrated IGIV is available for patients who can’t tolerate the high fluid volumes associated with larger doses of IGIV.

Typically, IGIV is infused over 2 to 4 hours. Follow the manufacturer’s instructions for maximum infusion rates, which vary based on the dose and the patient’s diagnosis, body size, and medical history. Monitor vital signs during the infusion. After the infusion is completed, follow your facility’s policy for disposal of vials.

Continue to monitor the patient’s hydration status for a few days after he receives IGIV or teach him and family caregivers how to do so at home. Tell him to report any signs and symptoms of an adverse reaction to the infusion, such as fever, rash, shortness of breath, neck rigidity, or severe headache.
Because the benefits of IGIV last for only a short time, the patient will probably need repeated infusions. The frequency of therapy depends on the disorder being treated.

**Dealing with trouble**

Although IGIV is generally safe and effective, it does carry some risks:

- **Infusion reaction.** If the patient develops signs and symptoms of an infusion reaction, slow the infusion rate. Infusion reactions often are related to a too-rapid rate, so some facilities require an infusion pump to tightly control the rate.

  If a serious infusion reaction occurs (compromised airway, hypotension, change in level of consciousness), stop the infusion immediately, maintain I.V. access, call for assistance, and administer emergency medications as needed, according to facility protocol.

- **Kidney failure.** Monitor your patient for decreased urine output and dehydration. Before and after IGIV administration, obtain blood urea nitrogen and creatinine levels. If the IGIV you’re administering contains sucrose, don’t exceed a dosage rate of 3 mg/kg/minute. Because of their osmolarity, sucrose-containing IGIV solutions are contraindicated in patients over age 65, those with heart failure, and those with a serum creatinine level over 2 mg/dl. As ordered, give these patients an iso-osmotic form of IGIV, such as Gamimune N.

- **Aseptic meningitis.** This infrequent reaction is most likely to occur in IGIV-naive patients receiving high-dose or rapid infusions.

- **Hyperviscosity of the blood.** The concentration of IGIV can lead to increased blood viscosity and platelet aggregation, which in turn can lead to thrombotic complications such as deep vein thrombosis, pulmonary embolus, stroke, or myocardial infarction.

**SELECTED REFERENCES**


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