The Role of an IG Infusion Nurse

By Cindi Vokey, RN, BSN

The infusion nurse is both a caregiver and an educator who must be experienced in the administration of IVIG and SCIG.

Immune globulin (IG) therapy has been prevalent in the medical field for many decades. In recent years, the use of IG therapy has increased due to the identification of multiple disease states that respond to therapy. A drug that was once primarily used for patients as a replacement therapy is now used to treat many autoimmune diseases. The evolving use of IG has created new dosing guidelines and administration schedules, requiring special consideration and training for the infusion nurse and his or her patient.

When caring for a patient, an infusion nurse is responsible for working collaboratively with other healthcare professionals. In addition, he or she must use the process of assessment, problem identification, intervention and evaluation to strive for safe, high-quality patient outcomes. By constantly monitoring patient and process outcomes, the nurse is able to identify areas that will benefit from performance improvement, thereby improving the quality of care.¹

IG Replacement Therapy for PIDD Patients

One of the largest patient populations treated with IG therapy is immune-deficient patients. Mostly referred to as primary immunodeficiency disease (PIDD), this disorder refers to the inability of a person’s immune system to create an adequate quantity or quality of antibodies to fight off infection. In effect, PIDD patients’ immune systems are either absent or hampered in their ability to function.²

When treating PIDD patients, an infusion nurse can administer IG in two ways: intravenously (IVIG) and subcutaneously (SCIG). The average patient receiving IVIG replacement therapy will receive a dose of 0.4 to 0.6 mg/kg every month. The dosing of SCIG is determined by the brand of IG administered. Some brands administered by IV can be given subcutaneously. Other brands, which are infused only subcutaneously, are dosed by conversion of IV to SC.
If you are a Hizentra patient or caregiver
Sometimes talking to someone who “gets it” is KEY.

Voice2Voice
Your key to explore Voice2Voice online

Voice2Voice is a peer-to-peer support program from CSL Behring, "the maker of Hizentra.
Voice2Voice connects Hizentra patients and caregivers with advocates who have direct experience with Hizentra and a know what it’s like to live with primary immunodeficiency disease (PIDD),
so you can ask them direct questions from patients like you and their advocates. (You can see what it’s all about)

Sign up for Voice2Voice.
You can enroll at Voice2Voice.com/V2V or call 1.877.98.62.V2V (8286) for assistance.

Hizentra is the Ig therapy that’s deliberately designed for SubQ use

Backed by the expertise of CSL Behring, Hizentra 20% is currently being used by more than 10,000 patients and providers, a number that’s growing every day.
Hizentra helps keep IgG levels stable with low-volume cell injections.
— The first and only IgG concentration delivers a consistent level of protection against infection.
— Individualized dosing means you can be confident that you are getting the dose that’s right for you.

Important Safety Information (continued)
First, your doctor will ask you not to use certain drugs or supplements that are not tolerated by SubQ injection in the area of injection. These drugs or supplements could cause bruising, bleeding, or infection at the injection site.

Second, the area of injection must be larger than the size of the injection needle. Make sure the area is clean and dry before you inject Hizentra.

Third, avoid injecting Hizentra Sub Q if you have had a local infection in the area where you will inject Hizentra. Avoid injecting Hizentra Sub Q if you have had a history of infection in the area where you will inject Hizentra. Avoid injecting Hizentra Sub Q if you have had a history of infection in the area where you will inject Hizentra. Avoid injecting Hizentra Sub Q if you have had a history of infection in the area where you will inject Hizentra. Avoid injecting Hizentra Sub Q if you have had a history of infection in the area where you will inject Hizentra. Avoid injecting Hizentra Sub Q if you have had a history of infection in the area where you will inject Hizentra.

Finally, if you have had a local infection in the area where you will inject Hizentra, you should talk to your doctor before you inject Hizentra. Your doctor may want to prescribe an antibiotic or other treatment for your infection before you inject Hizentra.

Please see full prescribing information for Hizentra on adjacent pages.

Hizentra is indicated for the treatment of primary hypogammaglobulinemia (IgG deficiency) in adults and children 1 year of age or older, but not for children under 12 months of age.

Hizentra is marketed in the U.S. by CSL Behring and Biologicals by CSL Behring International (Schaerberg, Switzerland), which are members of the CSL Behring Group (CSL Ltd, Melbourne, Australia). CSL Behring is a part of CSL Ltd.


Visit the to learn more. or call 1-800-FDA-1088.

For patients and providers:
Visit www.mylifebeyond.com or call 1-888-2-IgG2U (448-4283).
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Sign up for Voice2Voice.
You can enroll online at voice2voice.com/V2V or call 1-877-866-4683 (V2V) for assistance.

*All Voice2Voice advocates are not healthcare professionals or medical practitioners. If you have medical problems, please consult your physician. Individual experiences may differ.

Important Safety Information

Hizentra is for subcutaneous injection only. Please consult your physician before taking any medication.

Hizentra should be used only by qualified personnel with proper training.

Hizentra is made from human plasma and may contain viral particles.

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For people with PID

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Individualized dosing means you can have confidence that you are getting the dose that’s right for you.

Important Safety Information (continued)

Tell your doctor about any side effects that concern you. Your doctor will monitor for potentially serious reactions that have been seen with in-line mixers, including thrombosis, systemic reactions, vasovagal reactions, injection-site reactions, anaphylaxis, and death.

The most common drug-related adverse reactions in clinical trials were infections like reactions, pains, or infections like reactions, pain, reaction, or reaction. Your doctor will monitor for potentially serious reactions that have been seen with in-line mixers, including thrombosis, systemic reactions, vasovagal reactions, injection-site reactions, anaphylaxis, and death.

Hizentra is made from human plasma. The risk of cross-transmission of infectious agents includes viruses and, occasionally, the bacteria Campylobacter jejuni (400,000 people).

Read the symptoms guide. Your doctor will monitor for potentially serious reactions that have been seen with in-line mixers, including thrombosis, systemic reactions, vasovagal reactions, injection-site reactions, anaphylaxis, and death.

Visit www.hizentra.com or call 1-888-699-1000 for information on free samples.

Hizentra®, Immune Globulin Subcutaneous (Human), 20% Liquid
Initial U.S. Approval: 2010

BRIEF SUMMARY OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use Hizentra safely and effectively. See full prescribing information for Hizentra.

INDICATIONS AND USAGE
Hizentra is an Immune Globulin Subcutaneous (Human) (IGSC), 20% Liquid indicated for the treatment of primary immunodeficiency (PI) in adults and pediatric patients 2 years of age and older.

Dosage
For subcutaneous infusion only. Do not inject into a blood vessel.
Start treatment with Hizentra 1 week after the patient's last Immune Globulin Intravenous (Human) (IGIV) infusion, when the patient has received IGIV infusions at regular intervals for at least 3 months.

Calculation of the initial weekly dose of Hizentra needed to achieve a systemic serum IgG level of at least 3 months.

- **Calculate the initial weekly dose of Hizentra needed to achieve a systemic serum IgG level of at least 3 months**.
- Initial dose = Previous IGIV dose (in grams) x 1.53
- No. of weeks between IGIV doses

To convert the dose in grams to milliliters (mL), multiply the calculated dose (in grams) by 5.

- **Adjust the dose of Hizentra over time based on clinical response and serum IgG trough levels**.
- Measure the serum IgG trough level during IGIV therapy prior to switching to Hizentra and again after 2 to 3 months of treatment with Hizentra. Adjust the dose to achieve a serum IgG trough level that is approximately 290 mg/dL higher than the last trough level during prior IGIV therapy.

Administration
- Infusion sites – Abdomen, thigh, upper arm, and/or lateral hip. Use up to 4 injection sites simultaneously, with at least 2 inches between sites.
- Infusion volume – For the first infusion, up to 15 mL per injection site. This may be increased to 20 mL per site after the fourth infusion and to a maximum of 25 mL per site as tolerated.
- Infusion rate – For the first infusion, up to 15 mL/hr per site. This may be increased, to a maximum of 25 mL/hr per site as tolerated. However, the maximum flow rate is not to exceed a total of 50 mL/hr for all sites combined.

DOSE FORMS AND STRENGTHS
0.2 g/mL (20%) protein solution for subcutaneous injection

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CONTRAINDICATIONS
- Anaphylactic or severe systemic reactions to human immune globulin or components of Hizentra, such as polysorbate 80
- Hyperprolinemia (Hizentra contains the stabilizer L-proline)
- IgA-deficient patients with antibodies against IgA and a history of hypersensitivity

WARNINGS AND PRECAUTIONS
- IgA-deficient patients with anti-IgA antibodies are at greater risk of severe hypersensitivity and anaphylactic reactions. Discontinue use if hypersensitivity reaction occurs.
- Thrombotic events have been reported with the use of immune globulin products, including Hizentra.
- Aseptic meningitis syndrome has been reported to occur with IGIV or IGSC treatment (5.3).
- Monitor patients for reactions reported to occur with IGIV treatment that may occur with IGSC treatment, including renal dysfunction/failure, thrombotic events, hemolysis, and transfusion-related acute lung injury (TRALI).
- Products made from human plasma can contain infectious agents, e.g., viruses and, theoretically, the Creutzfeldt-Jakob disease (CJD) agent.

ADVERSE REACTIONS
The most common adverse reactions, observed in ≥5% of study subjects, were local reactions (i.e., swelling, redness, heat, pain, and itching at the injection site), headache, diarrhea, fatigue, back pain, nausea, pain in extremity, cough, rash, pruritus, vomiting, abdominal pain (upper), migraine, and pain.

To report SUSPECTED ADVERSE REACTIONS, contact CSL Behring Pharmacovigilance at 1-866-915-6958 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS
The passive transfer of antibodies may:
- Lead to misinterpretation of the results of serological testing.
- Interfere with the response to live virus vaccines.

USE IN SPECIFIC POPULATIONS
- Pregnancy: No human or animal data. Use only if clearly needed.
- Pediatric: No pediatric-specific dose requirements are necessary to achieve the desired serum IgG levels.

Storage and Handling
When stored at room temperature (up to 25°C [77°F]), Hizentra is stable for up to 30 months, as indicated by the expiration date printed on the outer carton and vial label. DO NOT FREEZE. Do not use product that has been frozen. Do not shake. Keep Hizentra in its original carton to protect it from light.

Revised: December 2012
IVIG Therapy for Autoimmune Diseases

IVIG therapy is used as an immune modulator to treat many autoimmune diseases such as chronic inflammatory demyelinating peripheral neuropathy, myasthenia gravis, Guillain-Barré syndrome, multiple sclerosis, polymyositis and dermatomyositis. The complete mechanism of IG is not fully understood; however, it is believed that through the administration of higher doses of IG, the immune system is able to reverse the autoimmune process. Although dosing can be different for several diseases, treatment is commonly given every three to four weeks, and it is usually administered at a high dose (generally 1 to 2 grams of IVIG per kg of body weight) to attempt to decrease the severity of the autoimmune disease. It is important for an infusion nurse to be familiar with the common scheduling of IVIG for each disease.

When preparing the IG, maintaining aseptic technique is important.

The Nurse’s Role in Administering IVIG Therapy

When administering IVIG, an infusion nurse must assess the patient’s health history and perform a risk assessment prior to each infusion. Special consideration needs to be taken in regard to the patient’s history of exposure to IVIG. For instance, patients are categorized in the following manner:

- IVIG naïve: patients who have never received IVIG
- IVIG initial infusions: patients who have received IVIG but may have changed brands or have not received therapy within six weeks
- IVIG subsequent infusions: patients who will receive therapy after they have received their first dose from a new brand, after the first lifetime dose or after having received the same drug within a six-week time frame (subsequent infusions are also defined as infusions that are well-tolerated without a reaction or significant change in vital signs)

The nurse must also be familiar with each brand of IVIG, its label and specifications and its titration guidelines.

Prior to preparing IG for administration, IV access (either peripherally or through a vascular access device) must be obtained. Infusion nurses receive specialized training for peripheral IV insertion. When accessing peripherally, a thorough assessment of the patient’s ease for access should be made. Should there be any previous difficulties with IV access, the nurse should report that to the prescribing physician.

Patients who have been receiving therapy for a prolonged period of time or who have been diagnosed with poor peripheral IV access will have a vascular access device for IV administration. The infusion nurse must have extensive experience with these devices, which include:

- PICC lines (must be experienced with dressing changes, flushing requirements and cap changes)
- Port-a-caths (must be experienced with accessing and de-accessing)
- Tunneled catheters such as Hickman or Groshong (must be able to identify which tunneled catheter the patient has and what the flushing requirements are)

Central lines should always be assessed for signs of infection, and the nurse should educate the patient in the proper identification of central line infections.

When preparing the IG, maintaining aseptic technique is important. To maintain a sterile infusion, antiseptic can be used on rubber stoppers.

For proper IG administration, the nurse must be familiar with the necessary equipment. Most infusions require the use of several glass vials that will need a vented spike adapter to be added to the tubing. In addition, the use of infusion pumps is recommended. Therefore, knowledge of common infusion pumps is required.

Both prior to and throughout the infusion, the nurse should assess the patient’s vital signs (pulse, blood pressure, respirations and temperature). The nurse also should ensure the patient has taken premedications as ordered by the physician and that the patient is adequately hydrated.

Once IVIG therapy has been initiated, careful assessment of the patient for infusion-related reactions is crucial. The nurse should understand the initial intervention for rate-related reactions, including stopping the infusion and assessing the patient’s status, as well as decreasing the rate of infusion. All side effects should be documented and reported, including mild to moderate rate-related reactions such as headache, nausea and vomiting, chills, rigors and flushing.3

While anaphylaxis is rare, it can occur during IVIG and SCIG administration. As such, the nurse’s knowledge of the management of anaphylaxis is crucial. The nurse must
know where the anaphylaxis kit is located and should be familiar with the administration of an EpiPen and other medications included in the kit. Should anaphylaxis occur, IG administration should be immediately stopped, and the appropriate anaphylaxis medications should be administered. The patient should then be evaluated by emergency medical services personnel, and the prescribing physician should be notified.

Following the infusion, the nurse should discuss important patient interventions such as staying well-hydrated, continuing premedications and monitoring urine output.

**The Nurse’s Role in Administering SCIG Therapy**

The use of SCIG administration has been increasing over the past few years, and there are now several products on the market. SCIG offers several advantages for the patient. IV access is not needed because the drug is administered in the subcutaneous tissue. A steady state of IgG is maintained, providing better long-term coverage from potential infections. And, the patient tends to have less systemic side effects. Ultimately, the goal is to allow the patient to become independent in therapy and to self-administer his or her infusion on a weekly basis, and the nurse plays an essential role in this.

The nurse administering or teaching the patient to administer SCIG should be knowledgeable about the drug’s clinical indication and implementation and should demonstrate competency in clinical judgment and practice. Patient education is a crucial element to the success of SCIG therapy. The nurse should always maintain and educate the patient regarding infection control practices and aseptic technique. And, he or she must understand how to manage patient side effects and to recognize the most common ones.

Site selection and needle selection play an important role in the proper administration of SCIG. Often, the nurse will educate the patient regarding needle comfort. If the patient is new to SCIG, the nurse can explain the use of different needle lengths and the option of choosing multiple sites. In some situations, the nurse may encourage the patient to use several sites at once, thereby administering less volume of IG into each site.

When teaching the patient to self-administer, there are two essential points. First, the patient should be taught to prime the drug but to not allow the drug to flow toward the end of the needles. Allowing a “dry stick” (when the drug does not reach the end of the needles) helps decrease skin reactions. Second, once the needles have been inserted, checking for proper placement is crucial. The nurse and/or the patient must draw back on the plunger to check for a blood return. If a blood return occurs, the needles may be entering a vascular area. When this happens, the needles should be discarded and a new set should be primed and inserted as instructed.

Site reactions, which include swelling, itching and redness, occur frequently in patients. These reactions should decrease over 24 to 48 hours as the drug is slowly absorbed after the infusion, and they should decrease in occurrence over time. For instance, reactions occur more often in patients who are initiating therapy, and they usually decrease over the first eight to 10 weeks of therapy. It’s important for the nurse to educate the patient regarding local reactions and symptomatic treatment of them, including warm or cool compresses (whichever is preferred by the patient). But the patient should be instructed not to use hot compresses, as they can cause the drug to absorb too quickly.

Even after the patient becomes independent with SCIG, ongoing patient education is important. And, while the nurse’s responsibilities may decrease compared with those of IVIG, his or her responsibilities are still vastly important.

**Ensuring Expert Care**

The infusion nurse plays an important role in the proper administration of IG therapy. To ensure expert care, the nurse must maintain the necessary qualifications and education. And, he or she must understand that a key component of both IVIG and SCIG administration is patient education. Throughout the infusion process, the goal is to instill trust and confidence in the patient and to maintain professionalism in the patient-nurse relationship.

**CINDI VOKEY, RN, BSN, is the clinical educator at NuFACTOR Specialty Pharmacy.**

**References**