



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.

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.³

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.⁴ 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.

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