Understanding Venous Access for IVIG Infusions

By Michelle Greer, RN, IgCN

VENOUS ACCESS is an important consideration when creating an immune globulin (IG) treatment plan. And, since most patients who receive intravenous IG (IVIG) use their venous access solely for this therapy, a decision should be made if access should be peripheral or central.

Treatment Considerations

When a physician prescribes IG, the dose, frequency and length of therapy *can*, but does not *always*, dictate the type of venous access to be used. The patient should have input based on lifestyle and personal preferences, but the physician must first determine clinically what the best options are for the patient. In addition, insurance companies may narrow the patient's options.

For instance, when deciding on the route of administration (either intravenously or subcutaneously), some health plans require members to have a clinical reason for approving subcutaneous IG (SCIG), one of which is poor venous access. Another accepted justification is if the patient has had previous tolerability issues with IVIG. Lifestyle preference, however, is not accepted as a reason to approve SCIG.

Determining site of care for IVIG infusions (at home, in a physician's office or in a hospital outpatient or freestanding infusion center) should also be up to the patient and physician. The home setting offers convenience and comfort, as well as more scheduling flexibility than outpatient settings, but the physician may prefer to infuse in his or her own office or in an affiliated hospital infusion center for other reasons, one of which can be tolerability issues with the infusions. Conversely, since home infusions are typically the most cost-effective site of care, health plans might lean toward this setting as a way to save money.

Venous access is also a crucial treatment consideration. A decision must be made about whether the infusions should be given via peripheral IV access that is established for each infusion, or whether a central line should be placed. This is often determined by the length of time a patient will need therapy. For some patients, IG can be a lifetime therapy, particularly for those with a primary immune deficiency (PI) or an autoimmune condition. For others, it can be long-term, but not for life. And, in some instances, the length of treatment is not known at the time treatment is initiated, and treatment frequency can vary depending on the prescriber and the condition being treated.

Venous Access Challenges

In most cases, establishing peripheral IV access is not problematic, and there is no venous access consideration in between infusions since access is discontinued after each infusion is completed. There may be times, however, when venous access *is* challenging.

When IVIG is prescribed, regardless of site of care, a nurse who is skilled at peripheral IV placement will perform the procedure. While some people don't have easily accessed veins (sometimes due to a person's anatomy or sometimes due to long-term IV use that can damage the vein and cause scar tissue to form permanently), nurses who are adept at IV placement can successfully secure access without an issue even in tough situations. Most institutions and home infusion providers will have a policy and procedure in place regarding peripheral IV placement, including number of attempts to secure access. Three access attempts is the typical maximum; however, that may be extended with patient permission. At times, another nurse might be called in if the situation and/or site of care allows for it. Additionally, vein location devices are sometimes available and utilized in challenging situations.

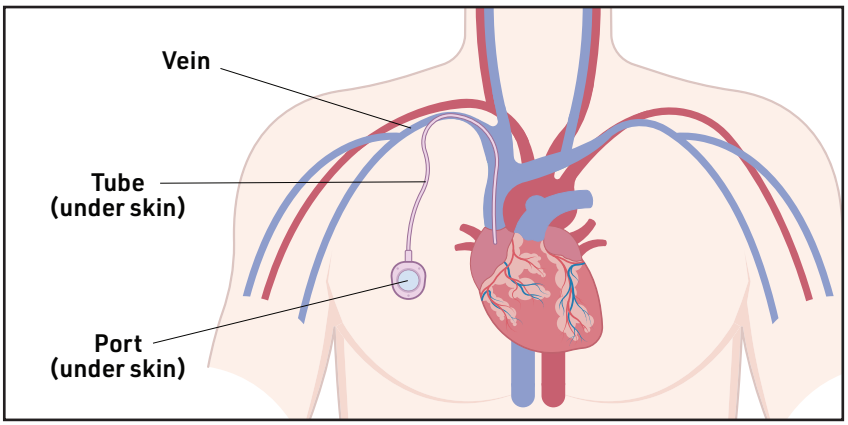
Resolving Venous Access Challenges

If there are ongoing venous access challenges, they must be resolved. Depending on the IG dosage and patient preference, switching to subcutaneous infusions might make the most sense. However, if the dose is too high or if the person does not want to or cannot self-administer treatment, a central venous catheter, commonly called a central line, might be the solution.

There are various types of central catheters, and not all are appropriate for an IVIG patient. A central line's insertion point can be in the arm or chest, but the internal tip of the catheter is always in a larger, more central blood vessel. This can be the subclavian vein or the superior vena cava. Although some central lines might be placed in the neck for the jugular vein or in a location to infuse into a femoral vein, these lines would never be used for IVIG infusions. Infusing any therapy into these large vessels aids in dilution of the treatment. In addition to infusing any medication into a central line, blood can also be taken from a central line for lab work, eliminating the need for another needle stick.

There are two particular types of central lines that might be used for IVIG infusions. The first is a port. Placement of a port is usually an outpatient procedure

Vascular Access Port Implantation



performed by a physician. It is a short and minor surgery to insert the port under the skin in the upper chest, with the catheter placed into the blood vessel. Prior to an infusion, a special needle is used to access the port, and once the infusion is complete, the needle is removed; there is nothing on the outside of the chest in between infusions since there is a thin layer of skin covering the port. When not in use, a port usually needs to be flushed monthly to keep it unobstructed. However, this is usually not an issue with IVIG since infusions are typically administered at least monthly.

The other type of central line that might be used for IVIG infusions is a peripherally inserted central catheter, or PICC. A PICC can be placed by a specially trained nurse in any setting, or it can be placed by a physician in an outpatient setting. A PICC is placed in the upper arm and fed through a vein until the tip is properly placed in the subclavian vein or the superior vena cava. Confirmation of proper placement is confirmed by an X-ray or ultrasound.

A PICC is generally less desirable for IVIG treatment for several reasons. First, there is an external component to the catheter that needs to be cared for on a more frequent basis. Second, while there is no consideration for showering or swimming with a port since there is nothing outside of the body, a PICC needs to be covered securely so it won't get wet. Lastly, the risk for a PICC to be dislodged is greater than with a port. One difference between a PICC and a port is that a PICC can stay in place for a shorter duration.

Complications of Central Lines

All central lines have potential complications that need to be considered to determine which is right for someone receiving IVIG. Mechanical issues are one complication, mainly an occluded line. While care is taken to flush out the line after an infusion or blood draw, a clot in the line can develop. Fortunately, measures can be taken to quickly dissolve the clot.

Risk of a blood clot outside of the catheter in a blood vessel is also an important consideration. All brands of IVIG include the same boxed warning of adverse events, including thrombosis. However, each individual's risk factors, however small, that increase the risk of a thrombosis must be assessed. This includes previous thrombotic events such as myocardial infarction or stroke, age, mobility, hypercoagulable conditions and other medications that increase the risk of clotting.

Another potential complication of a central line is infection. Because a central line is an implanted device, there is the risk of infection at the insertion site. While the possibility of bacteria getting into the bloodstream and causing an infection inside the body is low, it *can* happen. And for someone with a PI, this could be especially problematic. There is some thought within the immune deficiency community that a central line should never be used because SCIG is a better alternative.

The American Academy of Allergy, Asthma and Immunology (AAAAI) published a practice parameter for the diagnosis and management of PI. AAAAI's statement 14 states, "The placement of permanent central venous access solely for the purpose of IVIG administration should be discouraged.… Permanent central venous catheters can be associated with thrombotic and infectious complications. For patients who require intravenous access only for IgG administration every 2 to 4 weeks, permanent indwelling catheters might not represent an acceptable risk. Difficult venous access need not be a compelling indication for catheter placement with the growing availability of subcutaneous IgG infusion."

Venous Access Is Vital

All in all, proper venous access is vital to successful IVIG infusions. When peripheral venous access becomes a potential obstacle to a successful infusion, a central line might be a viable alternative. SCIG might also be a good solution. The patient and doctor should discuss and decide together what is best for managing the infusions and the condition being treated.

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