

Basic IV Therapy

IV therapy is a medical technique that involves administering fluids, medications, or nutrients directly into a patient's veins. It is commonly used to provide hydration, deliver medications quickly, and maintain electrolyte balance in the body. IV therapy is a minimally invasive procedure that can be performed in a hospital setting or even in the comfort of one's home by a trained healthcare professional.



When is IV Therapy Needed?

Dehydration

IV therapy is often needed when a patient is dehydrated or unable to take fluids orally. This can be due to vomiting, diarrhea, or other medical conditions.

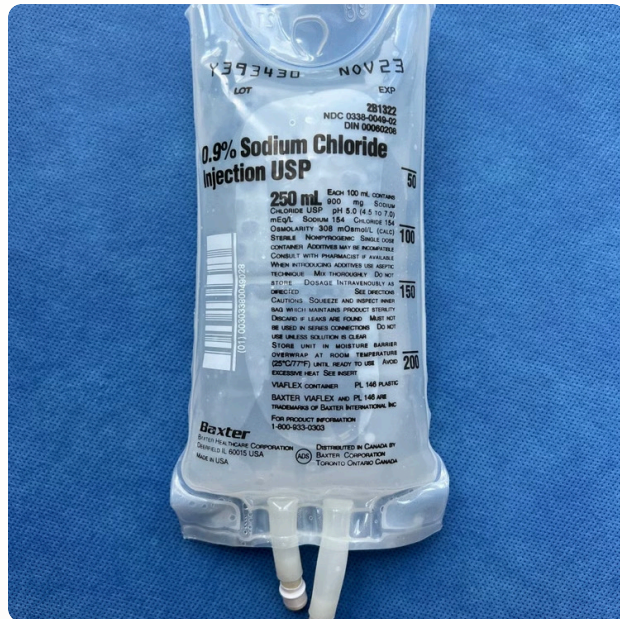
Medication Administration

Some medications cannot be taken orally and must be administered intravenously. In this case, IV therapy is necessary.

Fluid Replacement

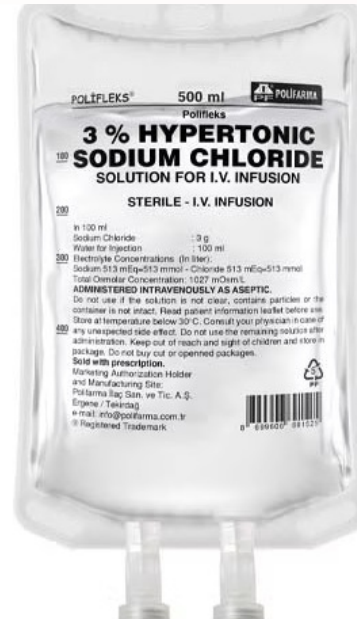
In cases where a patient has lost a significant amount of blood, IV therapy is vital for fluid replacement and to maintain vital bodily functions.

Different Types of IV Solutions



Isotonic Solution

An isotonic solution has the same concentration of solutes as the patient's blood. It is commonly used to replace fluids and maintain hydration.



Hypertonic Solution

A hypertonic solution has a higher concentration of solutes than a patient's blood. It's usually used to treat patients with low sodium levels or to remove excess fluid from the body.



Hypotonic Solution

A hypotonic solution has a lower concentration of solutes than a patient's blood. It is often used to replenish cells' water content and to combat cellular dehydration.

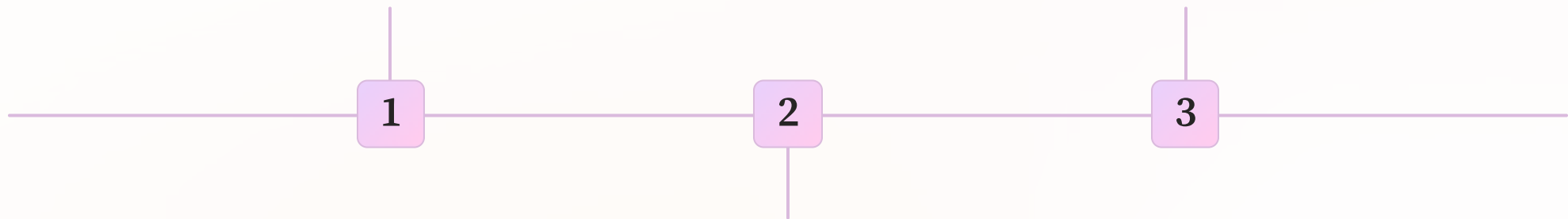
The Equipment Needed for IV Therapy

Over the Catheter Needle

An over the catheter is used to secure the IV line in place, providing a stable access point for medication administration or fluid infusion. It is inserted directly into the vein and held in place by a securement device, such as a tape or dressing.

IV Bag

The IV bag holds the solution that will be administered to the patient. It is typically made of flexible plastic, allowing it to be easily hung and adjusted to the appropriate height for gravity-driven infusion or connected to an infusion pump. The bag is sterile and contains the necessary markings for precise measurement and monitoring of fluid intake..



IV Tubing

The IV tubing acts as a pathway for the fluid to flow from the IV bag to the patient's vein. It is important that the IV tubing is sterile and properly connected to prevent any contamination or air bubbles from entering the patient's bloodstream.

Intravenous Pump

An infusion pump is used to deliver the fluid at a controlled rate into the patient's vein. It ensures that the IV therapy is administered accurately and safely, preventing over-infusion or under-infusion. The pump is programmed with the prescribed flow rate and can also provide alarms to alert healthcare providers of any potential issues during the infusion process. regulate the flow rate of the IV solution. It ensures that the fluid is delivered at a consistent rate and helps prevent complications such as fluid overload or dehydration. insert the IV into a patient's vein.

Tourniquet

The tourniquet in IV Therapy and Blood Withdrawal is used for locating a suitable vein for IV insertion or blood withdrawal. It is applied to the upper arm or forearm, and is tightened to restrict blood flow, making the veins more prominent and easier to see. Once the vein is successfully accessed, the tourniquet is removed to restore normal blood flow. It is important to use the tourniquet correctly to prevent complications such as nerve damage or hematoma formation.

Tegaderm

Tegaderm is used to secure and protect the IV site. It is a transparent, adhesive dressing that is applied over the IV insertion point to keep the catheter in place and prevent contamination or dislodgement. Tegaderm allows for easy monitoring of the IV site, as it is transparent and breathable, allowing healthcare providers to observe any signs of infection or infiltration. It also provides an additional barrier against outside pathogens, reducing the risk of bloodstream infections.

IV Extension Set

The IV extension set and needless connector help to provide an extended length of tubing between the IV catheter and the infusion bag or syringe. This allows for more flexibility and ease of movement for both patients and healthcare providers. Additionally, the IV extension set can be used to administer medications or fluids that need to be delivered at a slower rate than the primary IV line. The needless connector ensures a secure connection between the extension set and the primary IV line, preventing any potential leakage or disconnection.



24 G IV Catheter

A 24g IV catheter is used for patients with small veins or for administering medications that require a smaller gauge. It is usually inserted into the patient's forearm or hand, and can be used for short-term IV therapy, blood transfusions, or blood draws. However, it is important to monitor the insertion site for any signs of infiltration or infection.



22 G IV Catheter

A 22g IV catheter is used for patients who require a slightly larger gauge for IV therapy. It is commonly used for administering fluids, medications, or blood products. The 22g IV catheter can be inserted into a larger vein, such as the basilic or cephalic vein, providing a more secure access point for the IV line. It is important to assess the insertion site regularly to check for any complications or signs of infection.



20 G IV Catheter

A 20g IV catheter is used for patients who require a larger gauge for IV therapy. It is typically used for administering fluids, medications, or blood products at a faster rate. The 20g IV catheter is inserted into a larger vein such as the antecubital vein or the external jugular vein. Careful monitoring of the insertion site is crucial to detect any signs of phlebitis or infection.



18 G IV Catheter

An 18g IV catheter is used for patients who require even larger gauge for IV therapy. It is commonly used in situations where rapid administration of fluids or blood products is necessary, such as in trauma or emergency situations. The 18g IV catheter is typically inserted into larger veins like the external jugular or femoral vein, but careful monitoring is essential to prevent complications like infiltration or hematoma formation.



16 G IV Catheter

A 16g IV is used for patients with specific needs for large-volume or high-flow IV administration. The larger gauge allows for a faster flow rate of fluids or medications. It is often utilized in critical care units, surgical settings, or during instances of severe dehydration or hypovolemia. However, it's important to closely monitor the site for potential complications like thrombosis or phlebitis, especially when using a larger size catheter.



14 G IV Catheter

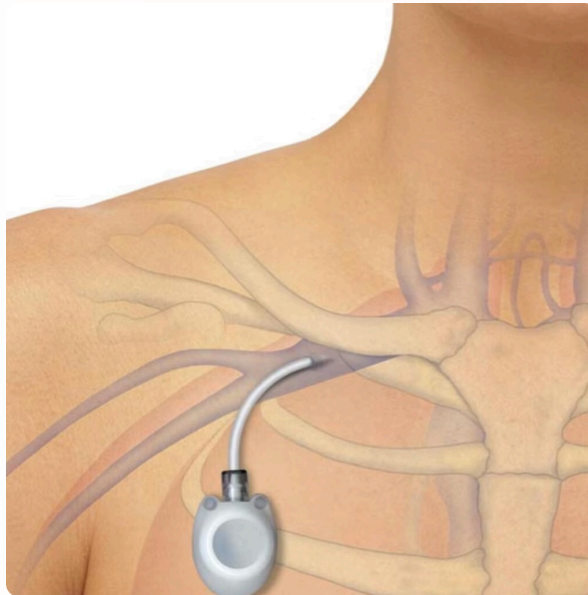
A 14g IV is used for patients who require rapid fluid resuscitation or blood transfusions. The larger gauge allows for a more efficient administration of large-volume fluids, which is especially beneficial in emergency situations. However, it's important to consider the potential risks of using a larger size catheter, such as increased pain or discomfort for the patient and higher risk of complications like infiltration or extravasation.

Central Line Devices



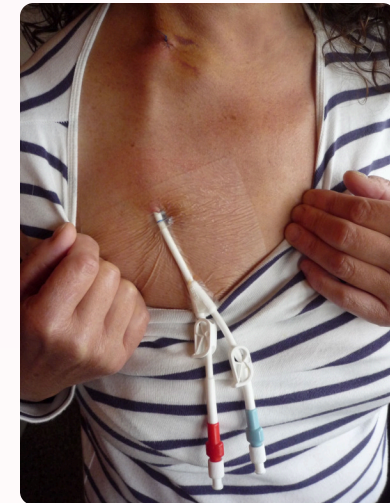
Central Venous Catheter (CVC)

A CVC is used for long-term intravenous access and can remain in place for days to weeks. It is placed in a larger central vein, such as the subclavian or jugular vein, allowing for multiple lumens or channels for different purposes. This type of catheter is commonly used for delivering medications, parenteral nutrition, and monitoring central venous pressure. However, due to the risk of complications such as infection or thrombosis, proper care and monitoring are crucial when using a CVC.



Medi-Port or Port-A-Cath

A medi-port or port-a-cath is used for delivering chemotherapy, blood transfusions, antibiotics, and other intravenous medications or fluids. Unlike a CVC, a port-a-cath is completely under the skin, with only a small portion visible externally. This type of catheter is often used for patients who require long-term intravenous treatment to avoid the inconvenience or discomfort of multiple needle sticks. A [Huber needle](#) is used to access the port-a-cath by puncturing the skin over the device and inserting the needle through the center of the rubber septum. Proper care and maintenance of a port-a-cath are important to decrease the risk of infection or other complications.



Hickman

A Hickman™ dual lumen catheter is used for long-term intravenous access, typically for patients who require frequent or prolonged intravenous therapies, such as chemotherapy or hemodialysis. The Hickman catheter is inserted into a large vein, often in the neck or chest, and has two separate lumens, allowing for the administration of multiple medications or fluids simultaneously. It is an important tool in providing reliable and convenient access for patients undergoing extended periods of intravenous treatment.

Potential Complications of IV Therapy

Phlebitis

Phlebitis is the inflammation of a vein that can occur as a result of IV therapy. It is often characterized by pain, redness, and swelling around the IV site. Phlebitis can be caused by various factors including the type of solution being infused, the size or type of the catheter, and inadequate flushing of the catheter. It is important to monitor the IV site closely for signs of phlebitis and to promptly report any symptoms to the healthcare provider.

Blood Clots

In rare cases, IV therapy can cause blood clots to form and potentially lead to more serious complications such as deep vein thrombosis (DVT). Blood clots can develop when there is irritation or damage to the inner lining of the vein, often due to factors like catheter placement or the type of infused solution.

Local Infection

IV therapy can introduce bacteria into the bloodstream, which can cause a local infection at the IV site. This can manifest as redness, warmth, and tenderness around the catheter insertion point. It is crucial to maintain proper hygiene and aseptic technique during IV insertion and to closely monitor the site for any signs of infection such as pus or drainage. Prompt intervention and appropriate antibiotic treatment are necessary to prevent the spread of infection..

Hematoma

In IV Therapy and Blood Withdrawal, hematomas can result from improper needle insertion, inadequate pressure applied after removing the needle, or patient movement during the procedure. A hematoma occurs when there is bleeding into the surrounding tissue, leading to the collection of blood underneath the skin. It is important to apply adequate pressure after needle removal to minimize the risk of hematoma formation and to monitor the site for any signs of swelling, discoloration, or pain.

Infiltration

Infiltration is when the IV fluid leaks into the surrounding tissue instead of flowing into the vein. This can occur if the catheter becomes dislodged or punctures through the vein wall. Signs of infiltration include swelling, coolness, and blanching around the IV site. It is essential to monitor the infusion site regularly, assess for any changes in the flow rate or appearance of the site, and promptly notify the healthcare provider if infiltration is suspected.

Extravasation

Extravasation is when a vesicant or irritant medication leaks into the surrounding tissues during intravenous administration. This can lead to severe tissue damage and necrosis. Signs of extravasation include pain, swelling, redness, and blisters at the infusion site. It is crucial to stop the infusion immediately, remove the catheter, and notify the healthcare provider for further management and potential antidote administration.

Administering IV Therapy



IV Therapy Procedures

Most often, IV therapy is administered in a healthcare setting by trained healthcare professionals such as nurses. The typical procedure involves selecting the appropriate vein, cleansing the site with an antiseptic solution, and inserting the catheter or needle into the vein. The healthcare provider then secures the catheter in place and connects it to the IV tubing, ensuring a proper flow rate. Regular monitoring of the IV site, the patient's vital signs, and maintaining sterile technique are essential throughout the administration process.



IV Pumps

IV pumps are typically used in a healthcare setting to regulate the flow rate of fluids and medications during IV therapy. These pumps help ensure accurate and controlled administration, minimizing the risk of complications such as infiltration and extravasation. The flow rate is set according to the prescribed order and the patient's specific needs, and the pump alarms notify the healthcare provider if there are any deviations from the set parameters. Regular checks and calibration of IV pumps are important to maintain their accuracy and effectiveness in delivering IV therapy.



Patient Comfort

patient comfort and education in infusion therapy because it plays a significant role in their overall experience. Ensuring the patient is comfortable during IV therapy can be achieved by providing adequate pain management techniques, such as applying a local anesthetic or using distraction techniques. Additionally, educating the patient about the procedure, potential side effects, and expected outcomes can help alleviate any anxiety or apprehension they may have..



Conclusion and Key Takeaways

1

IV therapy is essential for many medical treatments.

It is used to hydrate patients, administer medications, and replace lost fluids.

2

IV therapy carries some risks.

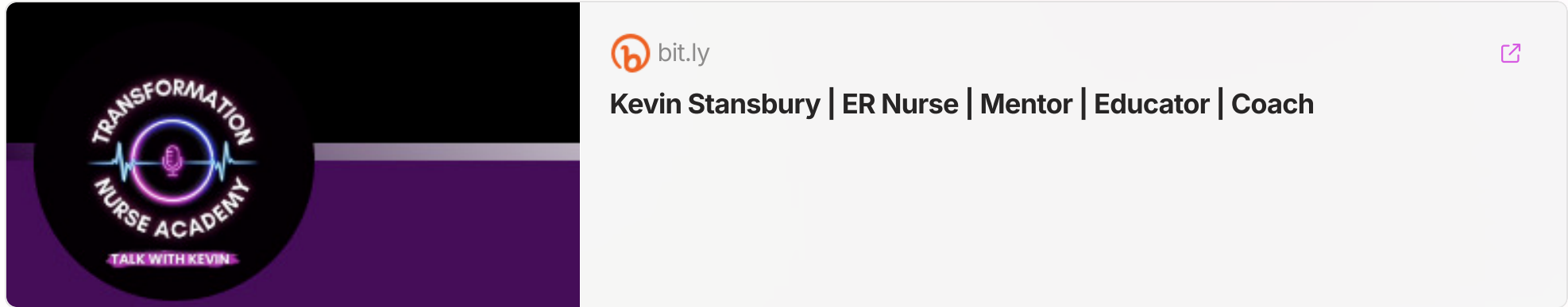
While it is generally safe, there are some potential complications that can occur.

3

IV therapy should be administered by trained professionals.

It's important to ensure that patients are comfortable during the procedure to minimize their discomfort.

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Kevin is a dedicated healthcare professional with a passion for patient care and education. He strives to provide the best possible experience for his patients and ensure their safety throughout any medical procedure. Follow Kevin on his social media platforms to stay updated on his latest insights and tips for healthcare. Don't forget to share his website and resources with your friends and colleagues to help spread awareness and improve patient outcomes.