Intravenous Therapy

Medications or therapeutic solutions may be injected directly into the bloodstream for immediate circulation and use by the body. State practice acts designate which health care professionals can initiate intravenous (IV) fluid therapy and medication administration. Medical assistants must consult their state practice act before attempting any intravenous procedure. In some states the medical assistant may start IV fluid therapy with advanced training and physician supervision. Medical assistants should be aware of the dangers of administering medications by the intravenous route and recognize they do not have the training necessary to push IV medications (bolus). *The following information is provided only to acquaint you with the IV therapy process and should not be considered a competency.*

Generally, intravenous fluids are administered to replenish body fluid supply and electrolytes, most commonly solutions of 5% dextrose, normal saline, 45% normal saline, or 5% dextrose with normal saline. Dextrose contributes glucose to meet energy needs and saline contributes sodium, an electrolyte that maintains fluid balance and cellular functions. In addition, blood products, including packed cells or plasma; hyperalimentation (designed for patients too sick to meet their own nutritional needs), and medications may be administered by the IV route.

The intravenous administration of medications or solutions may be per unit dosage or may be continuous. Examples of unit dosage are bolus, IV push, or scheduled intermittent administration by heparin lock or piggyback medication into an IV port. An example of continuous dosage is an IV drip that may last several hours or around the
clock. The flow rate of intravenous lines is regulated by a flow clamp or infusion pump.

Intravenous administration requires extra knowledge and precautions because of the direct access to the bloodstream. Adverse reactions, which can be fatal, may be caused by the specific medication, too many fluids administered too rapidly into the body, violation of any of the medication rights of administration, or certain pre-existing medical conditions. Non-fatal reactions include necrosis of tissue (sometimes a reaction to chemotherapy) or swelling or infiltration through the blood vessel into the tissue, obstructing IV flow. Any office in which IV fluid therapy is performed must have emergency equipment, emergency medical access, and established office policies for routine administration, dealing with adverse reactions, and the handling of emergencies. The patient and the infusion site must be assessed regularly during the infusion for signs of adverse reactions. The following should be reported to the physician immediately: redness, swelling, heat, bleeding, and loss of feeling at the site of the infusion.

Starting an IV requires preparation. Before an intravenous site is chosen, tubing is selected and connected to the correct solution container, following sterile technique. The tubing is flushed to remove all air. Tape and dressing supplies for the site must also be prepared beforehand. A preparation tray with appropriate IV starter materials and the prepared IV is taken to the patient. An intravenous pole is used to hang the IV solution on.

The intravenous site and the appropriate size and type of catheter are selected. The IV is generally started in the arm, although different medical scenarios may require other sites. The intravenous catheter includes an outer cannula to thread into the vein and an inner needle to serve as a guide for insertion and then to be removed. A constricting
tourniquet is placed above the site. The skin in cleansed and the catheter is introduced into the vein to obtain an open blood supply. The tourniquet is released and removed. The plastic cannula is advanced into the vein and the needle is removed. To reduce the patient’s anxiety, it is important to mention that the needle has been removed and that only the plastic cannula remains. As soon as the needle is removed and blood supply has been established, the site is anchored with tape, the IV tubing is connected, and dressing of the site is completed. The IV is regulated with flow clamps or IV pump as prescribed by the physician. Gloves are worn during the procedure as part of standard precautions. All needles and biohazard materials are disposed according to office policy and OSHA standard precautions. Figures 49-21a through 49-21d illustrate the setting up and initiating of an IV.
Figures 49-21a – 49-21d – IV setup and initiation. (a) Prepare the drug; (b) Clean the administration port; (c) Pinch the line; (d) Administer the drug.

PROCEDURE 49-10: Demonstrate the Administration of Medication during Infusion Therapy

Theory

Depending on state regulations, a CMA or RMA may be allowed to administer medication to a patient during IV therapy under the supervision of a registered nurse and/or physician. There are several methods for administering medication to a patient receiving infusion therapy. Medications may be added to the primary infusate container (need to explain what this is), although this is rarely done as pharmacists perform this function in the pharmacy under strict asepsis, to ensure proper mixing and prevent the
drug from infusing in the base of the container and being delivered as a bolus dose to the patient. The medication may also be administered directly into a vein that is not being used in the IV therapy. In the most common method, the medication is added through an injection port using the “S-A-S” method described below. Normal saline is injected into the cannula port to ensure the lock is clear (“S”). Then the medication is administered as prescribed by the physician into the cannula port (“A”), followed by more saline to ensure that the full amount of medication has cleared the lock (“S”).

Materials

- 3 syringes with needles
- medication to be administered
- normal saline (0.9%) 4 mL
- alcohol wipes
- gloves
- sharps container
- patient chart

Competency

(Conditions) With the necessary materials, you will be able to (Task) administer medication (Standards) through an intermittent infusion device correctly within 15 minutes.

1. Wash your hands and gather equipment.
2. Check to make sure the medication matches the physician’s order. Calculate the dosage, if necessary. Look up information relating to the medication’s function, usual
doses, and side effects. Check for patient allergies.

3. Check medication compatibility with the infusion product being used.

4. Put on gloves.

5. Disinfect the cannula port with the alcohol wipe.

6. Verify that the cannula and vein are freely open, with no blockages.

7. With the first of the three syringes, slowly inject 2 mL of the normal saline into the cannula port.

8. With the second syringe, administer the medication as prescribed by the physician into the cannula port.

9. With the final syringe, inject 2 mL of normal saline into the cannula port.

10. Remove the gloves and wash your hands.

11. Document the procedure. Include date, time, site, medication, route, and amount administered. Follow office policy for recording the expiration date and lot number.

**Patient Education**

Be prepared to explain side effects the patient should be alert for and report.

Instruct the patient to report any sudden reactions to the medication, whether local or general.

**Charting Example**

04/18/XX   9:35 AM   Injection of medication XXXXX given to patient via cannula port. Injections of 2 mL of normal saline used to ensure cleared lock before and after injection of medication. Infusion therapy continues in the cephalic vein
above right dorsal venous arch. Patient reports that the vein is slightly “sore”
but he reports he is in no significant pain. 2/10 on the pain scale. [Signature]
Sage Wade, RMA