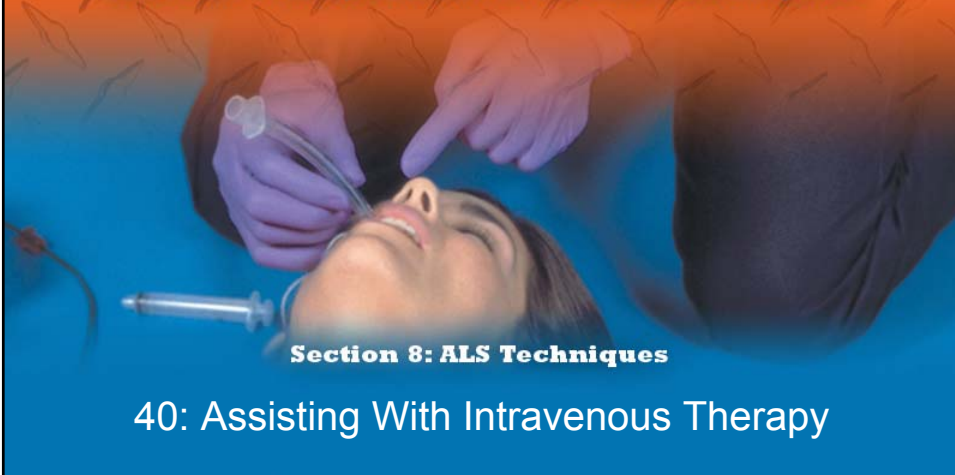


Emergency

Care and Transportation of the Sick and Injured



Section 8: ALS Techniques

40: Assisting With Intravenous Therapy

Cognitive Objectives (1 of 3)

1. Know the types of IV fluid used in the prehospital setting.
2. Analyze and differentiate between the various intended applications for each of the IV solutions.
3. Analyze and differentiate between administration sets and their appropriate applications.
4. Analyze and differentiate between the various types of catheters used in IV therapy and their appropriate use.

Cognitive Objectives (2 of 3)

5. Analyze and discuss the need for properly securing the IV tubing to the patient following IV insertion.
6. Analyze the need for alternative IV insertion sites and equipment, and differentiate between them: saline locks (buff caps) intraosseous needles, external jugular IVs.
7. Analyze and differentiate between the various types of local and systemic complications in IV therapy: infiltration, phlebitis, occlusion, vein irritation, hematoma, allergic reactions, air embolus, catheter shear, circulatory overload, vasovagal reaction.

Cognitive Objectives (3 of 3)

8. Correctly define terms: access port, crystalloid, piercing spike, drip set, macrodrip, microdrip, drip chamber, keep-vein-open (KVO), butterfly catheter, over-the-needle catheter.
9. Analyze and appreciate the differences in treatment required for pediatric IV therapy.
10. Analyze and appreciate the differences in treatment required for geriatric IV therapy.

Affective Objectives (1 of 2)

11. Apply and maintain proper body substance isolation throughout the entire IV therapy process.
12. Explain the concept of IV equipment assembly before any catheter insertion.
13. Explain and appreciate the special requirements and training needed for alternative IV sites: saline lock (buff cap), intraosseous needles, external jugular IVs.

Affective Objectives (2 of 2)

14. Understand possible complications associated with IV therapy.
15. Explain how to troubleshoot and correct complications associated with IV therapy.
16. Appreciate the limits of fluid administration for both geriatric and pediatric patients.

Psychomotor Objectives

17. Demonstrate the proper sterile technique for assembly of the IV equipment, including: gloves, 4" x 4" gauze sponges, proper IV tape.
 18. Spike the IV bag with the proper IV administration set. Correctly fill the administration set, including the drip chamber.
 19. Demonstrate the proper technique for securing IV tubing to the patient.
 20. Demonstrate the proper technique for choosing age-appropriate catheter sizes for pediatric and geriatric patients.
- All of the objectives in this chapter are noncurriculum objectives.

Techniques and Administration

- Equipment must be kept sterile.
- Assemble equipment before starting IV.



IV Solutions



Administration Sets



Administration sets move fluid from the IV bag into the patient's vascular system.

Drip Sets

- Number refers to number of drops per milliliter.
- Either microdrip or macrodrip



Preparing an Administration Set

1. Remove rubber pigtail.
2. Remove cover from spike.
3. Slide spike into port.
4. Run fluid through tubing.
5. Twist cover to let air escape.
6. Fill drip chamber half way.
7. Hang bag.

Catheters



Securing the Line

- Prepare tape before inserting catheter.
- Create a loop.
- Do not tape around extremity.

Saline Locks



Maintain IV site without running fluid

Intraosseous (IO)

- Needle inserted into bone
- Used in pediatric patients in emergency situations
- Inserted in the proximal tibia with a Jamshedi needle

External Jugular

- Provides venous access through the external jugular veins.
- Vein is compressed by placing a finger on the vein above the clavicle.



Possible Complications

- Reactions may be local or systemic.
- Local reactions are limited.
- Systemic reactions involve other body systems.

Infiltration (1 of 2)

- Escape of fluid into surrounding tissue
- Caused by:
 - Catheter passing through vein
 - Improper catheter placement
 - Patient movement
 - Tape securing site loosened

Infiltration (2 of 2)

- Signs and symptoms
 - Edema/tightness
 - Slow flow rate
- Correction
 - Remove IV.
 - Apply direct pressure.

Phlebitis

- Inflammation of the vein
- Causes
 - Nonsterile equipment
 - Prolonged IV therapy
 - Irritating IV fluids
- Watch for fever/tenderness/red streaking.
- Discontinue IV.

Occlusion

- Physical blockage of vein or catheter
- Can be caused by insufficient fluid flow or patient movement
- Watch for slow flow and blood in tubing.

Vein Irritation

- Can be caused by rapid infusion rate
- Watch for redness and phlebitis.
- Discontinue IV.

Hematoma (1 of 2)

- Accumulation of blood
- Watch for blood pooling around IV site.
- Apply direct pressure.

Hematoma (2 of 2)



Hematomas can be caused by improper removal of a catheter, causing tenderness and pain.

Allergic Reactions

- Sensitivity to IV fluids or medications
- May be mild or result in anaphylaxis
- Discontinue IV.
- Monitor IV.

Air Embolus (1 of 2)

- Air introduced into circulatory system
- Improperly prepared or monitored IV

Air Embolus (2 of 2)

- Signs and symptoms
 - Shock
 - Respiratory distress/arrest
- Correction
 - Place patient on left side with head lowered.

Catheter Shear

- Portion of catheter is shaved off.
- Caused by improper insertion technique
- Watch for sudden shortness of breath.

Circulatory Overload

- Too much fluid delivered to patient
- Unmonitored IV administration
- Watch for respiratory difficulty and edema.
- Slow IV, raise patient's head, and administer high-flow oxygen.

Vasovagal Reactions

- Reaction to needles or sight of blood
- Watch for syncope and anxiety/diaphoresis.
- Treat for shock.

Troubleshooting Problems

- Check:
 - Fluids
 - Administration set
 - Height of IV bag
 - Type catheter
 - Constricting band

Pediatrics

- Use smaller gauges of catheters.
- Other sites may be used.
- Control fluid delivery with Volutrol.

Geriatrics (1 of 2)



It may be necessary to use a Volutrol IV set to prevent fluid overload.

Geriatrics (2 of 2)

- Smaller catheters may be required.
- Skin and veins may be fragile.
- Closely monitor fluids.