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IV Fluids



Objectives

- 1-Define IV Fluids
- 2-List types of IV Fluid
- 4-Discuss types of solution
- 5-Explain types of IV Fluid depending on cases

History

Modern IV therapy is less than a century old. Yet, it was known that medications could be injected into a vein as early as the 1600s. Two world wars brought in the era of modern IV therapy. However, the greatest advance in drugs, equipment, and procedures has occurred in the past 25 years.

Define

Intravenous (IV) therapy is the administration of a fluid substance (usually balanced electrolyte solution) directly into a vein as therapeutic treatment

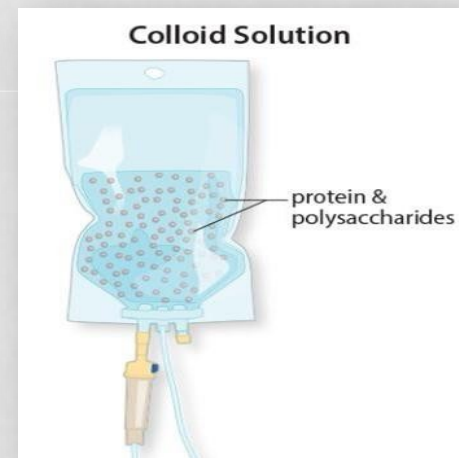
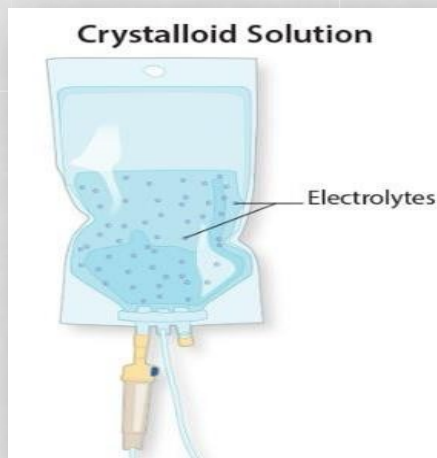


Types of IV fluids

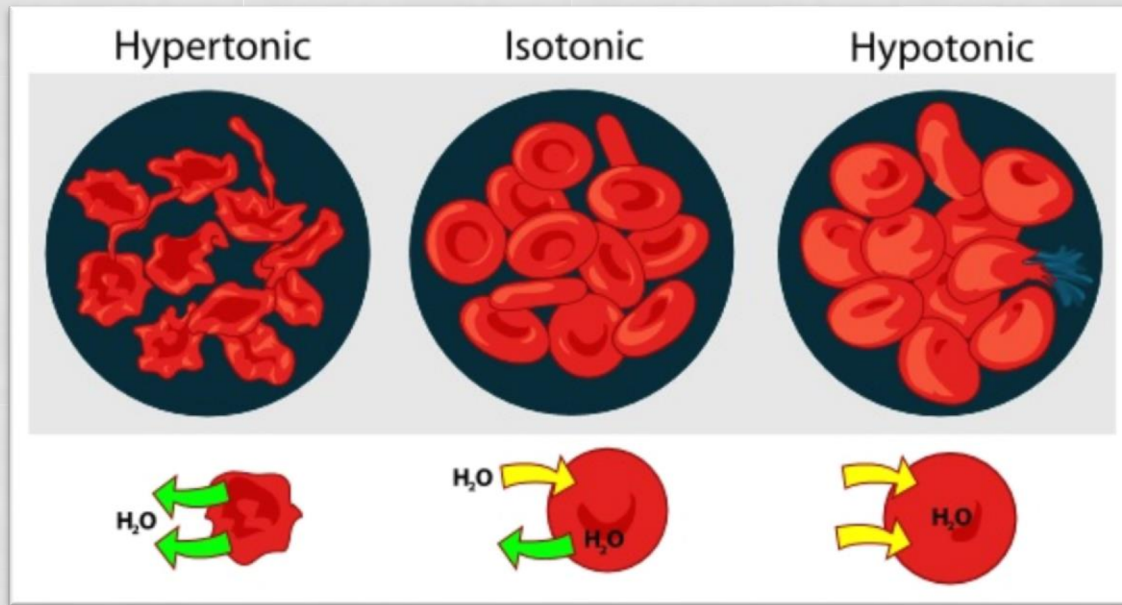
We have two types of IV fluids:

Crystalloids and Colloid

- Crystalloid solutions contain small molecules that easily flit across semi-permeable membranes.
- Colloid solutions, unlike crystalloid solutions, contain larger molecules.



Types of solutions



Hypertonic

Hypertonic: high solute, low solvent

Isotonic

Isotonic: equal solute, and solvent

Hypotonic

Hypotonic: low solute, high solvent

Types of IV Fluids

Normal saline(9% normal saline, **NS**): is a sterile, nonpyrogenic solution. It's a crystalloid fluid and is generally isotonic.

Half Normal saline (45% NaCl): It's a hypotonic, crystalloid solution of sodium chloride dissolved in sterile water.

Lactated Ringer's (**RL**) It's basically normal saline with the addition of electrolytes and a buffer (lactate), which helps explain why the solution is also isotonic.

Dextrose: Finally, there are many variations on dextrose: Dextrose in Water (**DW**) , Dextrose in Saline(**DS**), Dextrose in Lactated Ringers (**DL**).



Types of IV Fluid depending on cases:

Hypertonic

Hypertonic solutions:

Hypertonic saline is composed of NaCl with higher concentration of sodium compared to normal blood serum. Used for hyponatremia and increased intracranial pressure (ICP).

- ✓ 3% Saline.
- ✓ 5% Saline.
- ✓ 5% Dextrose in 0.9% Saline.
- ✓ 5% Dextrose in 0.45% saline.



Isotonic

Isotonic fluids: These fluids are useful when the patient has lost fluid volume from blood loss, dehydration, or even shock.

- ✓ 0.9% Saline
- ✓ 5% dextrose in water (D5W)
- ✓ 5% Dextrose in 0.225% saline (D5W1/4NS).
- ✓ Lactated Ringer's.



Hypotonic

Hypotonic solutions: When a patient develops diabetic ketoacidosis, the intracellular space becomes dehydrated.

- ✓ 0.45% Saline (1/2 NS).
- ✓ 0.225% Saline (1/4 NS).
- ✓ 0.33% saline (1/3 NS).



References

- <https://www.registerednurse.com/isotonic-hypotonic-hypertonic-iv-fluid-solution-overview-for-nursing-students-with-quiz/>.
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**THANK
YOU**