



Intravenous Fluids

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Topics:

Introduction

01

02

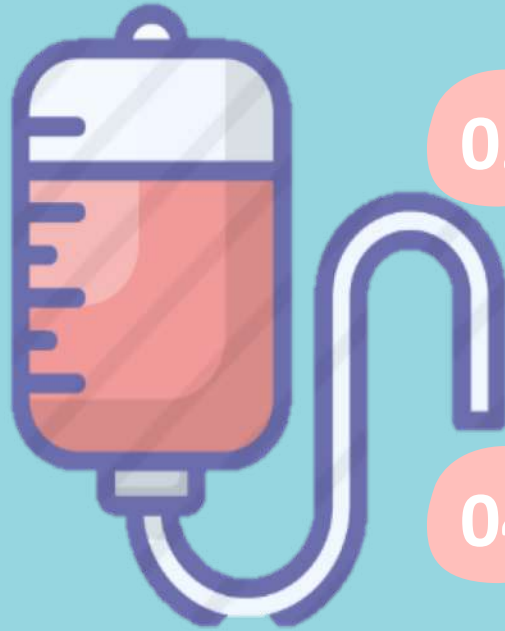
Types of IV
fluids

Crystalloids

03

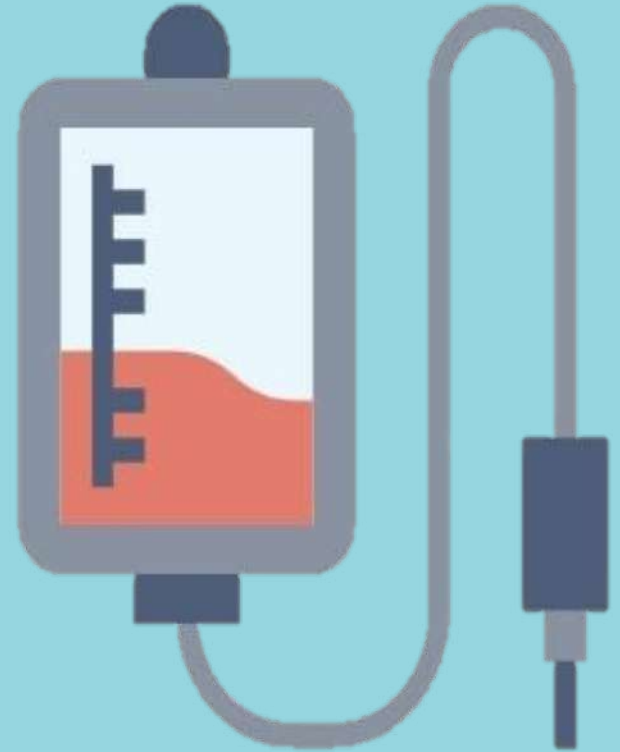
04

Colloids



Introduction:

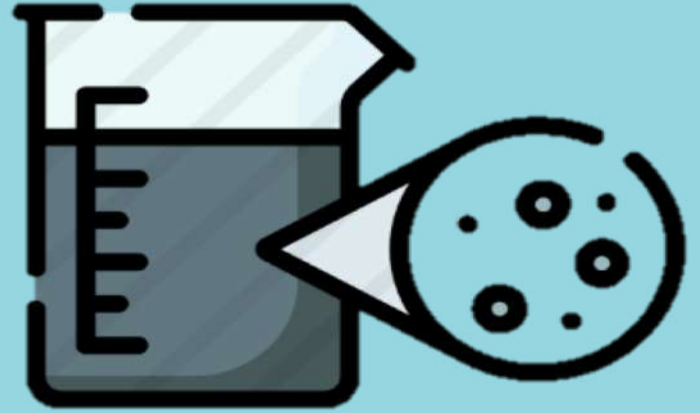
Intravenous fluids, also known as intravenous solutions, are supplemental fluids used in therapy to restore or maintain normal fluid volume and electrolyte balance when the oral route is not possible. IV fluid therapy is an efficient and effective way of supplying fluids directly into the intravascular fluid compartment, in replacing electrolyte losses, and in administering medications and blood products.



Types of IV Fluids

01

Crystalloids

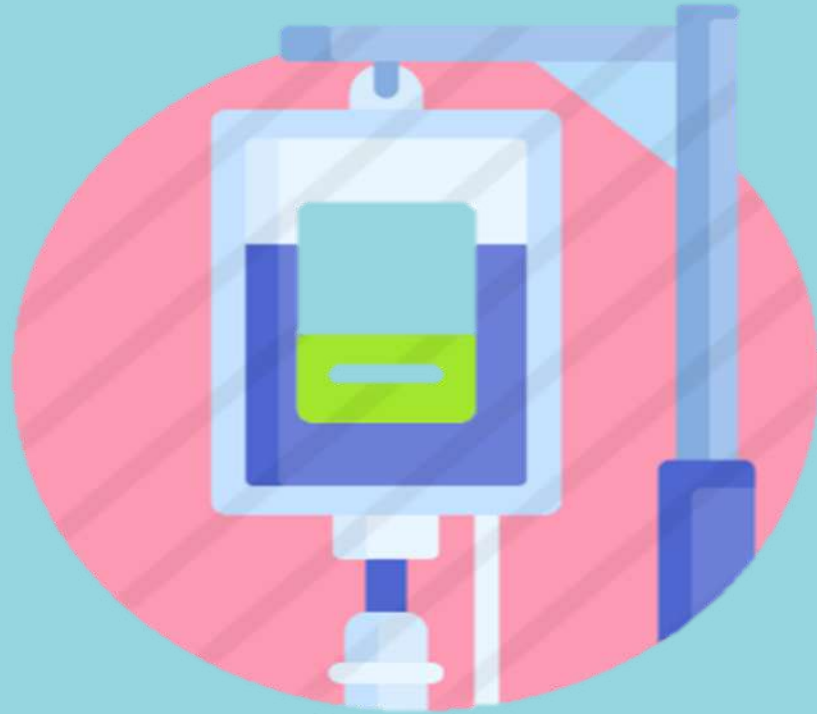


Colloids

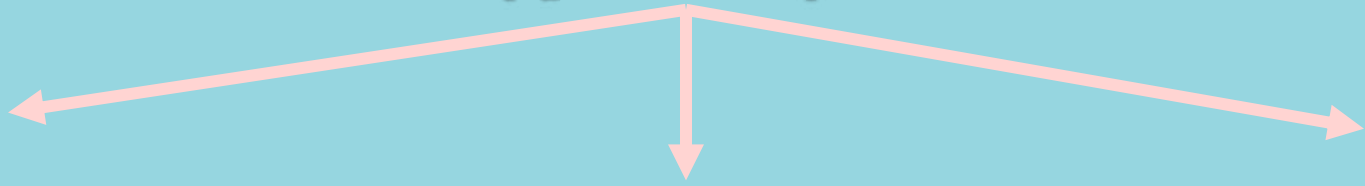
02

Crystalloids

Crystalloid solutions contain small particles that pass easily from the bloodstream to cells and tissues.



The three types of crystalloids are:

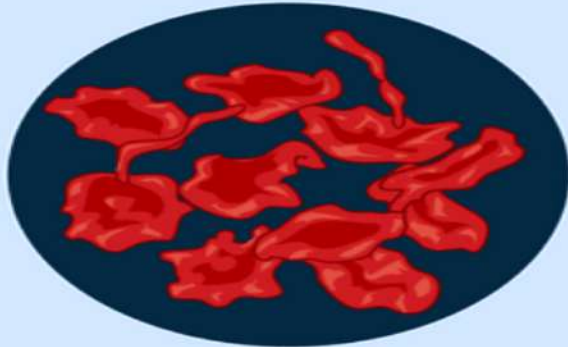


❖ Hypertonic

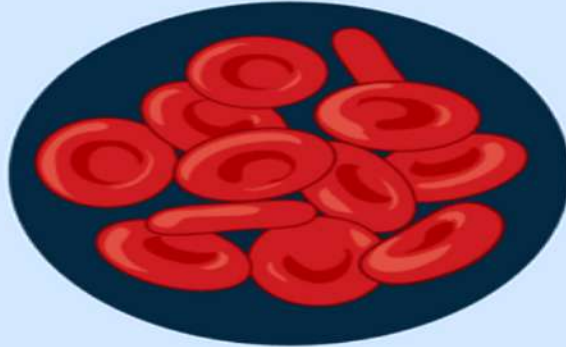
❖ Isotonic

❖ Hypotonic

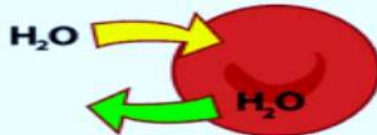
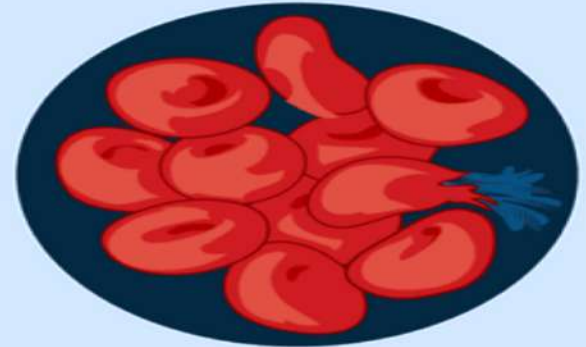
Hypertonic



Isotonic



Hypotonic



- **Hypotonic:**

hypotonic solutions have a lower concentration of solutes (electrolytes)
And osmolality less than 250 mosm / L

0.45% sodium chloride

0.2% sodium chloride 2.5% dextrose in water

- **Used**

to treat patients with conditions causing intracellular dehydration , when fluid needs to be shifted into the cell; such as :

- ✓ Hyponatremia.
- ✓ Diabetic ketoacidosis.
- ✓ Hyperosmolar hyperglycemic state.



- **Hypertonic:**

Solution that have a higher tonicity or solute concentration Hypertonic fluids have an osmolarity of 375 mosm/L or higher

3% sodium chloride (3% NaCl)

5% Dextrose with normal saline (D5NS)

- **Used:**

- ✓ The osmotic pressure gradient draws water out of the intracellular space, increasing extracellular fluid volume, so they are used as volume expanders.

- ✓ critical situations of severe hyponatremia; Patients with cerebral edema.



- **Isotonic:**

Isotonic solution contain the same osmolarity of blood plasma

0.9% NaCl (Normal Saline Solution Dextrose 5% in Water (D5W))

- **Used:**

- to treat low extracellular Hemorrhage Severe or vomiting or diarrhea.
- wounds.



Colloids:

Colloid solutions contain large molecules that do not pass through semipermeable membranes and therefore remain in the blood vessels; colloids expand intravascular volume by drawing fluid from the interstitial space into the vessels through higher oncotic pressure; Less total volume is required compared to IV fluids; Colloids are indicated for patients in malnourished states and patients who cannot tolerate large infusions of fluid.



Summary:

In conclusion:

The IV fluid or Intravenous solution are supplemental fluids used in therapy, also the types of IV fluid which are 2 types: Crystalloids and colloids, the Crystalloid solutions contain small particles that pass easily from the bloodstream to cells and tissues and the Colloid solutions contain large molecules that do not pass through semipermeable membranes and therefore remain in the blood vessels

Reference

1- https://nurseslabs.com/iv-fluids/#human_albumin

2- <https://www.studocu.com/en-ca/document/athabasca-university/review-of-pathophysiology-and-pharmacology-for-bn-practice-i/lecture-notes/iv-fluids-january-2019/8820237/view>



Thank
you