|  |  |  |  |
| --- | --- | --- | --- |
| **TYPE OF CRYSTALLOID** | **EXAMPLES** | **INDICATIONS** | **CONSIDERATIONS** |
| Isotonic: Concentration of particles (solutes) similar to that of plasma.Doesn’t move into cells, instead it remains within the extracellular compartment, thereby increasing intravascular volume. | 0.9% Sodium Chloride solution. | 1. Low extracellular fluid due to; haemorrhage, sever vomiting or diarrhoea, heavy drainage from GI suction, fistulas or wounds.
2. Shock
3. Mild hyponatremia
4. Metabolic acidosis
5. It is the preferred fluid for giving blood products
6. Resuscitation efforts
 | Replaces extracellular fluid. Use cautiously in patients with cardiac/ renal disease (volume overload is possible) |
| Lactated Ringer’s solution | 1. Replace GIT fluid loss (vomiting/ diarrhoea)
2. Fistula drainage
3. Burn/ trauma induced fluid loss
4. Acute blood loss, or hypovolemia.
 | * Avoid in patients with liver disease, as they can’t metabolize the lactate
* Contains potassium, consider not using in those with severe renal impairment
* Avoid in those with a pH higher than 7.5
 |
| 5% Dextrose | 1. Hypernatremia
2. Peri- and post- operative, to avoid starvation reactions or hyperglycemia caused by sympathetic activation
 | * Avoid in those with renal/ cardiac failure, could result in fluid overload
* At risk patients for intracranial pressure should avoid, possibility of increasing cerebral oedema.
* Never use with blood, can cause hemolysis
* Don’t use with resuscitation, doesn’t remain in the intravascular space.
 |
| Hypotonic; lower concentration of solutes compared with intracellular fluid.Decreased serum osmolality within vascular space, shifting fluid to the intracellular compartment and interstitial spaces. | 0.45%, 0.33%, 0.2% NaCl or 2.5% Dextrose | 1. Hypernatremia
2. Ketoacidosis
3. Hyperosmolar hyperglycaemic state
 | * Avoid in patients at risk of increased intracranial pressure, may exacerbate cerebral oedema
* Avoid with liver disease, trauma or burns due to potential for depletion of intravascular fluid volume
* Decreased vascular bed volume can worsen existing hypovolemia and hypotension, causing cardiovascular collapse
 |
| Hypertonic; higher concentration of solutes compared with intracellular fluid. The osmotic pressure gradients draw water out of the intracellular space increasing extracellular volume. (Volume expanders) | 3% NaCl | 1. Severe hyponatremia
2. Cerebral oedema
 | * Can result in intravascular fluid volume overload and pulmonary oedema
* Requires constant surveillance of patient
* Should not be given indefinitely
 |
|  | 5% Dextrose | Replaces sodium, chloride and some calories. |