

Sodium Bicarbonate 8.4%  
( $\text{NaHCO}_3$ )

McHenry Western Lake County  
EMS



# Objectives

- During this session we will discuss:
- Class
- Actions
- Indications
- Contraindications
- Dosing/Routes
- How supplied
- Precautions
- Side effects



# Class:

- Alkalinizer (A substance, such as sodium bicarbonate, used to boost the alkali reserve artificially)
- Chemical Class:  $\text{NaHCO}_3$

# Actions:

- Bicarbonate ion buffers acidosis
- Raises serum pH
- ↓ uptake of cyclic antidepressants
- Shifts  $K^+$  into cells



# Indications:

- Known preexisting hyperkalemia
- Known preexisting bicarbonate-responsive acidosis (DKA, OD of tricyclic & other Na channel blocking agents; ASA OD, cocaine, or diphenhydramine)
- Prolonged resuscitation with effective ventilation; upon return of spontaneous circulation after long arrest interval
- Crush Syndrome



# Dosing/Routes:

- TCA OD; Cardiac arrest w/ pre existing acidosis: 1 mEq/kg (1 ml/kg) IVP/IO (max 50 mEq).
- May repeat full dose and more in cyclic antidepressant OD
- Renal/Dialysis patients w/hyperkalemia or Crush Syndrome: 50 mEq slow IVP over 5 min.



# Dosing/Routes

- ***NOTE!!***
- Check IV patency before infusing.
- Flush IV before and after giving.



# How supplied:

- 50 mEq/50ml





# Contraindications:

- None when used in treatment of documented metabolic acidosis with effective ventilations.
- Alkalosis
- Inability to ventilate acidotic patient
- Not useful or effective in hypercarbic acidosis (cardiac arrest and CPR without intubation)



# Precautions:

- Don't mix with catecholamine's or calcium agents.
- The most abundant catecholamine's are epinephrine (adrenaline), norepinephrine (noradrenaline) and dopamine
- From Wikipedia.org



# Side effects/adverse reactions:

- Electrolyte: Metabolic alkalosis,  $\uparrow$  Na  $\downarrow$  K, hyperosmolality,  $\downarrow$  Ca.
- Shifts oxyhemoglobin dissociation curve to the L.
- Inhibits o<sub>2</sub> release to the tissues
- CV:  $\downarrow$  VF threshold; impaired cardiac function
- Skin: Tissue necrosis with infiltration at IV site.
- Ref: MWLCEMS Protocol and 2000 Mosby's Nursing Drug Reference Book

# Case Study

- You are at a Cardiac Arrest of a known dialysis patient and she has been unresponsive to resuscitative efforts. You have a patent IV line, your first dose of Sodium Bicarb would be?



# Answer

- 50 mEq/kg IVP/IO over 5 min

# Question?

- You are considering what condition with this patient.



# Answer

- Hyperkalemia

