

**Sodium bicarbonate promotes ionization and excretion of acidic drugs and prevents reabsorption across the renal tubular epithelium.**

## Indications:

### 1. Acute salicylate toxicity (*see Salicylate guideline*)

- Significant symptoms including tinnitus, vomiting, any acid-base disturbance
- Features of severe toxicity (dialysis also indicated)

### 2. Others

- May be useful in selected cases of phenobarbitone or chlorophenoxy herbicide toxicity (including MCPA)

## Complications:

- Alkalaemia
- $\uparrow\text{Na}^+$ ,  $\downarrow\text{K}^+$ ,  $\downarrow\text{Ca}^{2+}$
- Fluid overload/pulmonary oedema

## Method of administration:

Requires intensive fluid / electrolyte / acid base monitoring, and therefore should be undertaken in a clinical environment capable of achieving this

Indwelling urinary catheter to monitor adequate urine output and regular urine pH testing

Administer Hartmans solution (CSL) to maintain urine output of 1-2 mL/kg/hour

### **Sodium bicarbonate:** (1 mL 8.4% $\text{NaHCO}_3$ = 1 mmol $\text{NaHCO}_3$ )

(8.4%  $\text{NaHCO}_3$  should NOT be mixed with crystalloid and should be administered in a separate IV line)

- Administer 1-2 mL/kg 8.4%  $\text{NaHCO}_3$  over 5-10 minutes
- Add 150 mL of 8.4%  $\text{NaHCO}_3$  to 1000 mL 5% dextrose and commence infusion at 200 mL/hour
- Check urine and serum pH every 1-2 hours. Titrate  $\text{NaHCO}_3$  infusion rate (max 250 mL/hour) to achieve urine pH >7.5 (do not exceed serum pH >7.5) and urine output 1-2mL/kg/hour

### **K<sup>+</sup> replacement** (*Hypokalemia impedes urinary alkalinisation*)

- Correct hypokalaemia
- Administer 5-10 mmol KCl per hour to maintain serum  $\text{K}^+$  3.5 - 4.5 mmol/L
- Check serum pH and  $\text{K}^+$  (VBG) every 2 - 4 hours.

## Therapeutic endpoints:

- Resolving clinical symptoms AND
- Resolution of biochemical abnormalities eg. metabolic acidosis AND
- In the case of salicylate toxicity, evidence of two down trending serum salicylate concentrations