

## Who can administer

May be administered by registered competent doctor or nurse/midwife

## Important information

- Any reference to **mmol** refers to both sodium and bicarbonate (as they are equimolar)
- Equivalencies: **1mmol is equivalent to 1mEq bicarbonate**
- **Except in emergencies**, the 8.4% infusion **MUST** be given via a central line
- See **monitoring requirements** overleaf
- Significant **sodium** content

## Available preparations

Sodium bicarbonate 1.26% 75mmol (mEq) per 500ml infusion (Braun polyfusor)

Sodium bicarbonate 8.4% 100mmol (mEq) per 100ml infusion (Braun)

Sodium bicarbonate 8.4% in 10mmol (mEq) per 10ml (Martindale) (unlicensed)

## Reconstitution

Already in solution

## Infusion fluids

- Not required (product ready for use as is)
- If required the 8.4% infusion may be further diluted with Glucose 5% - see under further information

## Methods of intravenous administration

### **Bolus intravenous injection**

- In emergency situations can give (8.4%) as a bolus injection

### **Intermittent intravenous infusion (administer using an electronically controlled infusion device)**

- **Peripheral line** - use **1.26%** strength
- **Central line** - use any strength up to 8.4%
- See under 'Dose' below for more detail

## Dose in adults

### **Cardiac arrest**

- Routine use is **not recommended** but see specialist guidelines

### **Metabolic acidosis**

- **Seek specialist advice regarding dosage**

- Usually administered over 3 to 4 hours in an amount appropriate to body's base deficit (ref 1)
- If acid-base status not available: give 2 to 5mmol/kg, infused over 4 to 8 hours (ref 2)
- Subsequent doses should be adjusted to patient's requirements

### Tumour lysis syndrome (ref 3)

- The EVIQ cancer treatment guidelines state that sodium bicarbonate is not recommended due to a lack of clear evidence demonstrating benefit
- Urinary alkalinisation should **be avoided** in patients with tumour lysis syndrome especially when rasburicase is available

### Prevention of contrast-induced nephropathy (unlicensed use):

- **Using the 1.26% polyfusor** give 3ml/kg for ONE hour immediately before contrast, then 1ml/kg/hour during procedure and for SIX hours after procedure (ref 2)

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## Monitoring

- Monitor pH, serum bicarbonate, and arterial blood gases (ref 1)
- Frequent monitoring of serum electrolyte concentrations and acid-base status is essential during treatment
- Watch for consequences of sodium load
- Monitor for extravasation

## Further information

- Except in emergencies, Sodium bicarbonate **8.4% should be administered via a central venous catheter** as it has an osmolarity of about 2000mOsm/L (ref 2)
- Hypertonic solution (greater than 1.4%) may cause venous irritation, and extravasation may lead to tissue necrosis
- Accidental intra-arterial administration of the 8.4% preparation may cause shock, or may lead to the loss of an extremity
- Additions of other drugs **should never be made** to sodium bicarbonate infusions, particularly calcium and magnesium salts (ref 1)

### Dilution of Sodium bicarbonate (8.4%) infusion

- As Sodium bicarbonate 8.4% has a very high osmolarity and ideally should only be given via a central line, it may occasionally be necessary to dilute this strength.
- However, it is preferable to use a premade infusion bag containing 1.26% sodium bicarbonate.
- If the pre-mixed polyfusor 1.26% is not available, a **1.26% concentration** may be prepared as follows:
  - Remove 75ml from a Glucose 5% 500ml bag, add 75ml of Sodium bicarbonate 8.4% to the remaining 425ml in the bag.
  - Mix well by inverting the bag several times
  - While it is possible to use Sodium chloride 0.9% or 0.45% to prepare the 1.26% concentration, this is generally not done due to the increased sodium load.

## Storage

- Store below 25°C
- Do not refrigerate

## References

SPC 8.4% March 2018

1. Injectable medicines administration guide Medusa, downloaded 26th Feb 2019
2. Uptodate - accessed online 11th March 2019
3. [EVIQ guidelines](#): Prevention and management of Tumour Lysis Syndrome 25th May 2018

## Therapeutic classification

Electrolyte