Approved by Quality & Patient Care Committee
19/10/17

PHOSPHATE INTRAVENOUS REPLACEMENT

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.

1. AIM

To provide guidance on intravenous phosphate replacement for hypophosphatemia.

If the patient is requiring concentrated intravenous phosphate replacement whilst on total parental nutrition please refer to Prince of Wales Hospital clinical business rule Phosphate replacement in patients receiving Total Parenteral Nutrition.

2. PATIENT

- Women with hypophosphatemia

3. STAFF

- Medical staff
- Nursing/midwifery staff
- Pharmacy staff

4. EQUIPMENT

- Sodium dihydrogen phosphate (each 10mL ampoule contains 10mmol sodium ions, 10mmol phosphate ions and 20mmol hydrogen ions).
- Potassium dihydrogen phosphate (each 10mL ampoule contains 10mmol potassium ions, 10mmol phosphate ions and 20mmol hydrogen ions)
- 250-500mL bag of sodium chloride 0.9% or glucose 5%

5. CLINICAL PRACTICE

- Administration of intravenous phosphate must be by a Registered Nurse or Midwife.
- Ensure the correct phosphate salt is prescribed and administered. Two preparations of intravenous phosphate are available and administered differently; take care to follow the correct guideline for the preparation you are using. These are:
    - **SODIUM** dihydrogen phosphate (each 10mL ampoule contains 10mmol sodium ions,
    - 10mmol phosphate ions and 20mmol hydrogen ions).
    - **POTASSIUM** dihydrogen phosphate (each 10mL ampoule contains 10mmol potassium ions, 10mmol phosphate ions and 20mmol hydrogen ions)
- Take extreme caution in patients with renal impairment as these patients are prone to severe life-threatening hyperphosphatemia.
- Avoid rapid or excessive intravenous phosphate administration as this may precipitate symptomatic hypocalcaemia.
- Monitor serum electrolytes closely whilst phosphate replacement is in progress.

SODIUM DIHYDROGEN PHOSPHATE

- Must be diluted before administration.
- Administer via a PERIPHERAL line
  Dilute 10mmol of sodium dihydrogen phosphate in 250mL to 500mL sodium chloride 0.9% or glucose 5%. Ensure adequate mixing by inverting the bag several times.
- Administer via a CENTRAL line
  Dilute 10mmol of sodium dihydrogen phosphate in 50mL to 250mL sodium chloride 0.9% or glucose 5%. Ensure adequate mixing by inverting the bag several times.
- Administer over 2 to 3 hours (maximum rate 0.2mmol/kg/hour).

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PHOSPHATE INTRAVENOUS REPLACEMENT cont'd

POTASSIUM DIHYDROGEN PHOSPHATE

Careful and thorough mixing of solution after dilution is essential to prevent pooling of ions in the flask or bag. Invert the bag ten times after injecting potassium dihydrogen phosphate to ensure even distribution.

Peripheral line administration:

- Must be diluted before administration.
- Dilute 10mmol of potassium dihydrogen phosphate in 250-500mL of sodium chloride 0.9% or glucose 5%. Administer over 2 to 3 hours.
- Due to the potassium component, adherence to the potassium policy is essential. Maximum concentration of potassium dihydrogen phosphate that can be administered via a peripheral line is 40mmol/L. Concentrations greater than this must be administered by a central line.
- Administer potassium dihydrogen phosphate over 2-3 hours. If a faster administration rate is required the maximum rate is dictated by the potassium content. The maximum rate of administration on general wards is 10mmol/hour. If an administration rate greater than 10mmol/hour is required the patient must be transferred to Acute Care for cardiac monitoring.

Central line administration:

- Must be diluted before administration.
- Dilute 10mmol of potassium dihydrogen phosphate in 50-250mL of sodium chloride 0.9% or glucose 5%. Administer over 2 to 3 hours.
- Administer potassium dihydrogen phosphate over 2-3 hours. If a faster administration rate is required the maximum rate is dictated by the potassium content. The maximum rate of administration on general wards is 10mmol/hour. If an administration rate greater than 10mmol/hour is required the patient must be transferred to Acute Care for cardiac monitoring.

COMPATABILITY

Do not administer with other medications without seeking advice from Pharmacy first.

6. DOCUMENTATION

All orders must be prescribed in full without abbreviations.

- NSW health fluid balance chart
- Gynaecological High Acuity Chart

7. EDUCATIONAL NOTES

Nil

8. RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE LOP

- Potassium- administration of oral and intravenous infusion

9. RISK RATING

- High.Review in 2 years

10. NATIONAL STANDARD

- Medication safety

PHOSPHATE INTRAVENOUS REPLACEMENT cont'd

11. REFERENCES

- Australian Injectable Drug Handbook, 6th Edition, Burridge, Collard and Symons The Society of Hospital Pharmacists of Australia
- MIMS Online available via CIAP accessed 7/10/14
- Prince of Wales Clinical Business Rule- Phosphate replacement in patients receiving TPN
- Dickerson RN. Guidelines for the intravenous management of hypophosphatemia, hypomagnesemia, hypokalemia and hypocalcemia. Hospital Pharmacy. 2001;
- 36(11):1201-1208.
- http://seslhnweb/powh/ICUCPG/CPG%20PDF/IV%20Admin%20May%202007.pdf
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