



PROTOCOL/PROCEDURE

SUBJECT: Inhalation Therapy with Hypertonic Saline in JHCH

DOCUMENT NUMBER: 13.41
DATE DEVELOPED: February 2009
LAST REVISED DATE: NEW
PLANNED REVIEW DATE: February 2011

DISTRIBUTION:

All Clinical Areas Kaleidoscope GNS

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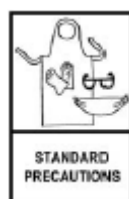
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Kaleidoscope GNS Quality Committee

Disclaimer:

It should be noted that this document reflects what is currently regarded as a safe and appropriate approach to care. However, as in any clinical situation there may be factors that cannot be covered by a single set of guidelines, this document should be used as a guide, rather than as a complete authoritative statement of procedures to be followed in respect of each individual presentation. It does not replace the need for the application of clinical judgment to each individual presentation.



Nebulised Hypertonic Saline

Rationale for treatment

Hypertonic Saline reduces sputum viscosity, and may aid in sputum clearance when added to a regime of regular airway clearance techniques. Hypertonic saline can reduce the frequency of lung infections and decrease the need for hospital admissions.

Patient Selection Criteria

People with cystic fibrosis (CF) and bronchiectasis who have cough and sputum production, and are able to both comply with and tolerate treatment are appropriate for a one month trial. They must also perform regular airway clearance techniques for sputum clearance.

Assessment of tolerability

If patient can perform reliable pulmonary function test (PFT):

- Perform baseline PFT in respiratory lab prior to commencing treatment.
- Administer Salbutamol 200mcg via a pMDI and spacer
- Perform post bronchodilator PFT
- Administer 6% hypertonic saline via a Pari LC Plus/Sprint/Star™ nebuliser and jet pump with an output 10L/m or air from wall outlet >6L/m (Pari LC nebulisers are kept in Out patients storeroom)
- Perform post hypertonic saline spirometry

If patient is unable to perform reliable PFT:

Patient requires the test dose to be supervised by a doctor, physiotherapist or nurse

- Monitor heart rate and SaO₂ through out test dose
- Auscultate to assess for wheeze prior to test dose
- Administer Salbutamol via MDI and spacer
- Administer hypertonic saline via Pari LC Plus/Sprint/Star nebulizer™ and jet pump with an output 10L/m or air from wall outlet >6L/m
- During nebuliser monitor HR, SaO₂, wheeze via auscultation, signs of respiratory distress

- Cease if the patient has signs of respiratory distress and administer Salbutamol if required.

Those that have significant bronchospasm (fall in FEV₁ of greater than 20%) or intolerable symptoms will not be eligible for continuation of treatment. It may be retrialled at a later date or a trial of a diluted dose e.g. 3% may be considered. If they do not have significant bronchospasm they will then have the one month trial and review with treating doctor.

Administration

Dose

- The dose of hypertonic saline is usually 5 ml of 6% concentrate. This is available in 10ml sachets, which are dispensed by pharmacy.
- A diluted strength may be given if patient is unable to tolerate 6 % but has no significant bronchospasm. E.g. 3%= 2.5 ml of 6% HS + 2.5ml of distilled water. The strength can be slowly increased over time until tolerating 6% concentrate.

Frequency

- Hypertonic saline is administered on a daily or twice daily basis.

Delivery

- Via a Pari LC Plus/Star™ nebulizer using a jet pump with an output 10L/m or air from wall outlet >6L/m

Long term use

- Prior to treatment administer bronchodilator
 - Salbutamol 200mcg via a pMDI and spaceror
 - Salbutamol 2.5mg/5mg via the nebuliseror
 - Terbutaline 500mcg
- Hypertonic saline can be taken before airway clearance techniques or interspersed with airway clearance techniques.
- Pari™ nebuliser should be replaced every 6 months in CF/Respiratory clinic

Prescribing Procedure

1. Prescribe treatment on a JHH discharge/outpatient script. Initial script should be for 1 month only until trial is finished.
2. Arrange tolerability assessment
3. Educate patient in administration procedure
4. Loan equipment- the respiratory clinic will loan a pump for the one month trial and will supply the nebuliser
5. Book patient for lung function test and doctor review one month following the commencement of treatment to assess response
6. Ongoing supply of the drug will continue through pharmacy – provide script for 1 month and five repeats. Normal script fees apply to all dispensaries.
7. Ongoing supply of the equipment
 - The Pari™ nebulizer will be replaced every 6 months by the clinic.
 - The pump is the patient's responsibility if purchased by the family, and is to be serviced annually and kept clean by washing with hot soapy water. If the pump is on loan from the clinic, servicing will be attended by biomedical engineering upon return of the pump every six months.
8. Further review treatment after six months

Refer to appendix 1 if Hypersal® (hypertonic saline 6% 10mL sachets) is unavailable

Fact Sheet: Maintained by Pharmacy JHH.

References:

Elkins et al (2006). A Controlled trial of long term inhaled hypertonic saline in patients with cystic fibrosis. The New England Journal of Medicine, Vol 354, No. 3

Related legislation

Department of Health Circulars: Medication Handling in NSW Public Hospitals PD 2007-077

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Appendix 1

Hypertonic Saline for Inhalation

Instruction Leaflet for Patients

Unfortunately Hypersal ® (hypertonic saline 6% 10mL sachets) is **temporarily** out of stock. Until it becomes available again the following instruction sheet is to help you make your own hypertonic saline for nebulisation. Your doctor is aware of the stock shortage and this has been agreed as the best way forward until there is more stock of Hypersal ®. We will supply only two weeks at a time, hoping that the Hypersal ® will return to stock in this time.

Two week's supply will include:

15 vials of 23.4% hypertonic saline 10mL

30 ampoules of water for injection 10mL

30 10mL syringes (you will need a new syringe in the morning and one at night)

30 single use needles (you will need a new needle in the morning and one at night)

Each vial of hypertonic saline can be used for one day. After the morning dose put the vial in the fridge for the night dose.

For each dose you need:

1 vial of hypertonic saline 23.4% 10mL (if this is for the morning dose you need a new vial, if it is the night dose, then use the vial from the morning dose that has been placed in the fridge)

1 new vial of water for injections 10mL

1 new 10mL syringe

1 new needle (to attach to syringe)

Step 1: open the 10mL syringe and needle. Attach one to the other – needle attaches to syringe by a screwing motion.

Step 2: draw back syringe to 2.6mL of air

Step 3: flip green cap off Sodium Chloride 23.4%

Step 4: inject the 2.6mL of air into the vial of sodium chloride 23.4%

Step 5: draw up 2.6mL of sodium chloride 23.4% into the syringe

Step 6: withdraw syringe from vial and deposit the 2.6mL of sodium chloride into the nebuliser chamber

Step 7: detach and discard needle into sharps bin

Step 8: draw back syringe to 7.4mL of air

Step 9: open water for injection and screw the syringe to the end of the plastic ampoule

Step 10: gradually inject the 7.4mL of air into the ampoule and draw up 7.4mL of water

Step 11: deposit the 7.4mL of water for injection into the nebuliser bowl and rock gently to mix

The solution is now made and ready to nebulise

Step 12: if it is the morning dose place the vial of sodium chloride 23.5% in the fridge, ready to be re-used for the evening dose. If it is evening dose discard the vial as well as the remaining water for injection, needle and syringe

If you have any questions please contact John Hunter Hospital Pharmacy department on 49213637.