Frimley Park Hospital NHS
NHS Foundation Trust

Shared Care Guidelines for the use of nebulised *Colistin (Colistimethate sodium)*

Treatment Plan and Shared Care Guideline

Section 1: Agreement for transfer of prescribing to GP

Patient details/addressograph

Name……

Address……

DOB…… Hospital no…….

Drug name and dose:……

Desired clinical outcome as agreed with the patient/carer

……

Consultant Address: Contact no:	**Agreement to shared care, to be signed by GP and Consultant before transfer of care to GP** Consultant signature: …… Date:……
GP Address: Contact no:	GP signature: …….. Date:……..

In case of emergency contact:

Name:……

Contact number:……..

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Treatment Plan and Shared Care Information

Responsibilities of the Consultant

- Assessing suitability of patients for treatment
- Initiating treatment
- Training of patient in the use of the nebuliser and loan of a nebuliser for initial period of use
- Promoting patient compliance
- Providing information and training for GPs
- Liaison with GPs to agree shared care
- Advising the GP of the exact regimen the patient is stabilised on
- Assessing and monitoring patient response to treatment
- Reporting adverse effects to the CSM

Responsibilities of the GP

- Prescribing of nebulised antibiotic once patient stable
- Liaison with the hospital consultant regarding any complications of treatment
- Reporting adverse drug reactions to the CF unit
- Promoting patient compliance

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Information

Lung damage associated with persistent infection with *Pseudomonas aeruginosa* is a major cause of morbidity and mortality in people with cystic fibrosis (CF). Nebulised antipseudomonal antibiotic treatment controls the burden of infection and has been shown to improve lung function, slow the rate of respiratory decline and reduce the frequency of exacerbations of infection in people with CF. This reduces the need for intravenous antibiotic treatment and hospitalisation. In addition, repeated courses of intravenous antibiotics mean that CF patients are at a high risk of developing antibiotic related toxicity. This can be avoided with nebulised antibiotics, which are able to achieve high local concentrations with low systemic absorption and toxicity.

In patients with bronchiectasis, colistin is only used when intermittent and then long term prophylactic oral antibiotics are failing to control exacerbations.

Licensed indications

Treatment of chronic pulmonary *Pseudomonas aeruginosa* infection in cystic fibrosis patients
Unlicensed in Bronchiectasis

Dose

Cystic Fibrosis: 1-2 million units nebulised every 12 hours.
(Most patients use 2 million units every 12 hours, some use it three times daily)

Bronchiectasis: 1-2 million units nebulised every 12 hours

Colistin comes in strengths of 500000 unit vials, 1 million unit vials and 2 million unit vials.

- Dilute 1 million units (1 vial) with 2ml of 0.9% sodium chloride injection.
- Dilute 2 million units (1 vial) with 4ml of 0.9% sodium chloride injection.
- For a more isotonic solution: dilute 1 million units (1 vial) with 2ml of water for injections and 1 million units (1 vial) with 2ml 0.9% sodium chloride and mix before nebulising.
- Nebulise the resultant solution to dryness.

The above solutions of colistin are also often mixed with salbutamol 2.5mg nebules prior to nebulisation.

The 0.9% sodium chloride injection and water for injections should come in plastic ampoules e.g. steri-amp®

Colistin should not be mixed with any other drugs or solutions in the nebuliser.

Cautions

Renal impairment: colistimethate sodium is renally excreted.
Porphyria: use with extreme caution.

Contra-indications

- Hypersensitivity to colistimethate sodium (colistin) or to polymyxin B.
- Myasthenia gravis: colistimethate sodium reduces the amount of acetylcholine released from the pre-synaptic neuromuscular junction

Prepared by: Jacqueline Kew, Liaison Pharmacist in conjunction with Dr Ti m Ho, Respiratory Consultant
Date: March 2006 Review date: March 2008

• Pregnancy: colistimethate sodium crosses the placenta and consequently there is potential for foetal toxicity if administered during pregnancy.
• Breastfeeding: colistimethate sodium is excreted in breast milk therefore breastfeeding is not recommended during therapy.

Side effects

- *Coughing and bronchospasm* - Occurs in about 10% of patients. Pre-dosing with a bronchodilator is recommended. Evidence of bronchial hyper reactivity in the presence of a bronchodilator may indicate an allergic response and colistimethate sodium should be discontinued.
- *Sore throat or sore mouth* - This may be due to hypersensitivity or superinfection with *Candida* species.
- *Rashes* - In the event that such reactions occur, treatment with colistimethate sodium should be withdrawn.
- *Neurotoxicity: vertigo, transient facial paraesthesia, slurred speech, vasomotor instability, visual disturbances, confusion, psychosis and apnoea* - Believed to be due to high serum concentrations of colistimethate sodium, which may be associated with overdosage or failure to reduce the dosage in patients with renal impairment. Concomitant use with either curariform agents or antibiotics with similar neurotoxic effects can also lead to neurotoxicity. Dose reduction of colistimethate sodium may relieve symptoms.

Any adverse drug reaction should be reported to the CF unit.

Interactions

These interactions are unlikely to occur with the nebulised form of colistimethate sodium but are included for awareness.

- *Muscle relaxants* - effects of non-depolarising muscle relaxants and suxamethonium enhanced
- *Nephrotoxic drugs* – increased risk of nephrotoxicity with aminoglycosides, capreomycin, teicoplanin, vancomycin, amphotericin, ciclosporin, platinum compounds
- *Ototoxic drugs* – increased risk of otoxicity with loop diuretics, teicoplanin, vancomycin, platinum compounds
- *Parasympathomimetics* – polymixins antagonise the effect of neostigmine and pyridostigmine
- *Oestrogens* – small risk of reduced contraceptive effect

Duration of treatment

Most patients stay sensitive to colistin for many years.

References

BNF 49 March 2005
SPC Colistin Injection, Forest Laboratories UK December 2004
SPC Promixin Nebules, Profile Pharma Ltd September 2004
Thorax 1997; **52** (Suppl 2)

This does not replace the SPCs, which should be read in conjunction with this guidance. Prescribers should also refer to the appropriate paragraph in the current edition of the BNF.

Shared care guidelines produced by Jacqueline Kew (Liaison Pharmacist) in conjunction with Dr Tim Ho (Respiratory Consultant).