



RESPIRATORY DISEASE

Top tips for MURs

- Establish which respiratory disease the patient has been diagnosed with in order to undertake the correct MUR
- Ensure that theophylline preparations and CFC-free beclometasone inhalers are prescribed by proprietary name
- Counsel patient on asthma or Chronic Obstructive Pulmonary Disease (COPD) triggers and how they can manage these (dependent on patients diagnosis)
- Counsel patient on the differences between preventer and reliever therapy & how to use the different inhalers
- Counsel patient on signs and symptoms of complications that need referral (see below)
- Check whether their asthma / COPD is well controlled (see below) - ask patient to complete a asthma control test (ACT) or COPD assessment test (CAT)
- Check the patients inhaler technique – refer to specialist nurse /GP if alternative inhalers required
- Check whether the patient has a self management plan
- Counsel patients on common side effects (see below)
- Counsel patient on reducing alcohol intake to within safe limits (Women - 2 units per day & men - 3 units per day)
- Check that asthmatic patient are only using a long acting beta 2 agonist in combination with a regular inhaled corticosteroid
- Check that patient has a review of treatment and condition every 12 months
- Advise patient who smoke of the benefits of stopping smoking, taking regular exercise and adequate dietary calcium to counteract osteoporosis (Refer to Stop Smoking Wales or pharmacy stop smoking services if happy to give up smoking)
- Advise patient to avoid royal jelly products which can trigger an asthma attack
- Advise patient to eat more fruit and vegetables to help build up immune system and to try relaxation techniques to avoid stress
- Check that patient has had an annual influenza vaccination and a pneumococcal vaccination (repeat in 5 – 10 years if needed)

Pathophysiology of Respiratory disease

- Asthma is a hyperactivity inflammatory response which results in patients experiencing breathlessness. This is caused by airway wall inflammation and constriction of the smooth muscle, due to release of inflammatory mediators. Blood vessels in the airways become engorged resulting in plasma leakage through the respiratory capillaries, causing increased fluid in the airways and damage to the epithelial lining. Mucus secreting goblet cells increase in size, adding to the increased thickness of mucus and generation of mucus plugs, which together with the airway inflammation and smooth muscle constriction result in airflow obstruction².
- COPD is a term used to describe a collection of chronic progressive lung conditions which cause irreversible lung damage which is characterised by airflow obstruction. This airflow obstruction is caused by a combination of airway narrowing, smooth muscle hypertrophy, fibrosis of respiratory bronchioles, mucus hypersecretion and a loss of lung elasticity due to the breakdown of alveolar walls. The number of mucus producing goblet cells in the lining of the lungs increases, resulting in excess mucus production that can not be cleared due to the reduced elasticity of the lungs¹. Therefore increasing the patients' susceptibility to infection.

Red flags that need referral

- Any symptoms of uncontrolled asthma (difficulty sleeping because of your asthma symptoms (includes coughing, wheeze, tight chest) or breathlessness during the day or if asthma is interfering with usual activities)
- Any symptoms suggestive of liver dysfunction (anorexia, nausea, vomiting, right upper quadrant pain, fatigue, lethargy, itching, jaundice or flu-like symptoms)
- Any signs of theophylline toxicity (vomiting, agitation, restlessness, pupil dilatation, sinus tachycardia and hyperglycaemia)
- Any symptoms of adrenal crisis (anorexia, abdominal pain, weight loss, tiredness, headache, nausea, vomiting, decreased level of consciousness, hypoglycaemia and seizures)
- Any symptoms of hypokalaemia (muscular weakness, myalgia, and muscle cramps)
- Paradoxical bronchospasm if taking corticosteroids
- Frequent courses of antibiotics and/or oral corticosteroids





How do respiratory medications work?

Adrenoreceptor agonists	Activates beta-2-adrenergic receptors in the smooth muscles in airways, causing them to dilate which decreases the airway resistance resulting in easier breathing (Used for Asthma and COPD)
Antimuscarinic bronchodilators	Activates muscarinic receptors on smooth muscles and submucosal glands in airways leading to a reduction in smooth muscle contraction and mucus secretion resulting in a bronchodilatory effect. (Acute Asthma therapy only + maintenance therapy for COPD)
Theophylline	Is a non-selective phosphodiesterase inhibitor which causes an increase in cyclic AMP in various cells in the lungs which inhibits inflammatory cells & immunomodulatory cells, as well as causing smooth muscle relaxation and airway dilation. (Used for Asthma and COPD)
Corticosteroids	Reduce airway inflammation, mucus hypersecretion, airway reactivity and improves airway function by exerting an inhibitory effect on leukocyte recruitment into the airways (Used for exacerbation and sometime as maintenance in steroid dependant disease)
Cromoglicate and related therapy	The exact method of action is unclear, but has an anti-inflammatory effect as they prevent the release of mediators involved in the inflammatory pathway from sensitised mast cells. (Used for Asthma only)
Leukotriene receptor antagonists	Blocks the effects of leukotrienes in the airways reducing swelling of airways and mucus production which inhibits the inflammatory process.(Used in Asthma only)
Mucolytics	Reduce the viscosity of mucus to help with mucus clearance. (Used in COPD only)
Phosphodiesterase type 4 inhibitors	Suppresses the release of inflammatory mediators and inhibits immune cell activation (Used in COPD only)

What are the common side effects to look out for?

Drug	Common side effects	Recommendation
Adrenoreceptor agonists	Tremor (particularly of the hand)	Inhaler technique assessment and counselling and then refer to GP for dose reduction
	Tension, headache, muscle cramps, palpitations, angioedema	Refer to GP
	Hypokalaemia in high doses	Refer to GP for potassium supplements
Antimuscarinic bronchodilators	Dryness of mouth, cough, nausea, constipation and headache, dizziness	Advise patient to drink plenty of fluids and refer to GP if troublesome
Theophylline	Nausea, vomiting, tremor, palpitations and arrhythmias	Refer to GP for blood tests
Corticosteroids	Oral candidiasis & sore mouth	Inhaler technique assessment and counselling. Advise patient to rinse mouth with water immediately after use and refer to GP for addition of spacer device if needed
	Dysphonia & hoarseness	Refer to GP
	Adrenal suppression, water retention, hypertension, diabetes, cataracts, muscle weakness, osteoporosis (long term use)	Ensure patient is taking oral steroids in morning as single dose and has a steroid warning card. Refer to GP if troublesome.
Cromoglicate and related therapy	Coughing upon inhalation, headache and sore throat	Inhaler technique assessment and counselling and then refer to GP if troublesome
	Bronchospasm	Refer to GP for symptom control
Leukotriene receptor antagonists	Abdominal pain, thirst, headache, insomnia	Refer to GP if troublesome
	Eosinophilia (wheezing and breathlessness), vasculitic rash, worsening pulmonary symptoms or peripheral neuropathy	Advise to stop taking medication and refer to GP urgently
Phosphodiesterase type 4 inhibitors	Diarrhoea, nausea, abdominal pain, weight loss, decreased appetite, headache, insomnia	Refer to GP

Potential serious drug interactions? - See BNF Appendix 1: Interactions for more details

Respiratory medication interacts with many other medications such as; NSAIDs, antihypertensives, antiarrhythmics, anti-bacterials, antidepressants, antihistamines, antipsychotics, sympathomimetics, diuretics, antiepileptics, ciclosporin, antifungals, interferons, digoxin, ulcer healing drugs, cytotoxics, antivirals and lipid lowering drugs

Where can you find more information?

- Respiratory system – BNF sub-section 3.1 to 3.3
- Chronic respiratory disorders distance learning pack can be found on WCPPE website (www.wcppe.org.uk)
- British Thoracic Society (BTS) and Scottish Intercollegiate Guidelines Network (SIGN) guidance – British guideline on the management of asthma can be found on BTS website (www.brit-thoracic.org.uk)
- NICE guidance: COPD – management of Chronic Obstructive Pulmonary Disease in adults in primary and secondary care, 2010 can be found on NICE website (www.nice.org.uk)
- Clinical Knowledge Summary (Prodigy) Asthma & COPD can be found on CKS website (www.cks.nhs.uk/home)

References

- 1 Chronic Obstructive Pulmonary Disease, CPPE Focal Point, Book 1, September 2009
- 2 Asthma, CPPE Focal Point Book1,