



From the Clinical Director

Healthy lung function is something that we can take for granted until such time as a significant illness declares itself. A considerable proportion of the Australian population will at some stage be affected by pulmonary (lung) disease that causes clinically significant symptoms. Examples of these conditions include asthma, pulmonary fibrosis, lung carcinoma, and for older people in particular, Chronic Obstructive Pulmonary Disease (COPD). In some cases, two or more significant lung diseases may be present at the same time.

One of the most common forms of lung disease affecting older people is Chronic Obstructive Pulmonary Disease (COPD), a condition that is thought to be present to a clinically significant extent in over 7.5% of Australians aged 40 years or older. The extent of symptoms is extremely variable - in the early phases these may be limited to mild breathlessness on exertion. However, COPD is often progressive and symptoms can be very severe indeed in the late phase of the illness.

COPD is a term that is used to describe a number of different lung conditions. One of these is emphysema, a structural defect in the lung tissue where the functional units of the lung (the alveoli) deteriorate and rupture. The alveoli fragile sacs where oxygen enters the body inspired breath, and carbon dioxide leaves via expired breath. Emphysema is irreversible, and when severe enough compromises gas exchange to the extent whereby those affected experience significant shortness of breath.

Another form of COPD is chronic bronchitis, where the bronchial tubes in the lungs become markedly inflamed and produce excessive amounts of mucus, which may in turn give rise to plugging of the airways. Both emphysema and chronic bronchitis may be present at the same time in the same person, meaning that lung function can become severely impaired to an extent whereby the simple activities of daily living such as walking short distances, showering and other light activity cannot be achieved without assistance of supplementary oxygen.

In Australia and around most of the world, the most common cause for the development of COPD is cigarette smoking. Other potential causes include significant exposure to environmental pollutants including fumes, chemicals and dust that can be found in some work environments - this is particularly relevant for some older people who may have worked in environments where strict occupational health and safety standards such as those which exist today were not operating many years ago. There is some evidence to suggest that long-term exposure to second-hand cigarette smoke may also predispose people to developing COPD.

Lung Foundation Australia estimate that nearly 1.5 million people in Australia have develop some form of COPD, and in nearly half of these people, symptoms have progressed to a stage whereby they produce clinically significant impairment. Although some older people dismiss their symptoms of breathlessness as simply being a part of growing older, it is important to realise that COPD is actually the third most common cause of death in Australia, after cancer and heart disease.

Symptoms of COPD can extend to much more than simple breathlessness. Severe chronic coughing is common, often producing a large amount of mucus. People with COPD are very prone to developing significant chest infections, and in fact, a common way for these people to die is as a result of developing a respiratory tract infection, usually pneumonia. For this reason it is very important to monitor people with COPD seeking to identify signs that may indicate a chest infection. These include fever, increase breathlessness and increased production of mucus which may change in character, becoming discoloured or viscous. Proper referral for medical assessment is vital under these circumstances.

Dr Chris Alderman, Director of Clinical Excellence, Ward MM.



Feature Article:

Medications for COPD

Medications play a critical part in the management of COPD. Most people with clinically significant COPD may be taking 4 or 5 different medications for this condition at any given time, as well as some medications used in short courses when needed.

Lung Foundation Australia have established guidelines to assist in the management of COPD. The types of medications that are used will depend upon the severity of symptoms and changes in lung function. This is usually measured using spirometry. For those with mild symptoms, a short acting inhaled bronchodilator such as salbutamol or ipratropium is often sufficient to control symptoms.

Moderately severe symptoms lung function estimated to be in the order of 40 - 60% of that predicted, it is usually necessary to add other inhaled medications. These would usually take the form of a long acting beta agonist drug such as tiotropium, and/or a long acting beta agonist bronchodilator such as salmeterol, formoterol or indacaterol. When lung function has deteriorated to a point less than 50% of normal predicted capacity, it is common to introduce inhaled corticosteroids medicines such as budesonide, fluticasone.

In many cases these medications may be delivered in the form of a combination product which may include both an inhaled corticosteroid plus a bronchodilator. Hand-held inhaler devices are usually sufficient to achieve delivery of the medications, but in some cases where technique proved to be problematic an alternative method of delivery would be via nebulisation. In all cases it is important to take care to ensure that good inhaler technique and that equipment is maintained in good condition.

One critical aspect of the ongoing management of COPD in the elderly is the requirement to monitor for and respond promptly to the development of infectious exacerbations. A minor upper respiratory tract infection that may prove to be nothing more than an inconvenience for a younger person can rapidly develop into potentially lethal pneumonia for an older person with COPD. This means that when signs such as fever and increased production of purulent mucus accompany worsening breathlessness it is very important to make a prompt referral for medical assessment. At this point it is often necessary to introduce antibiotic treatment (usually orally, although in cases where there is rapid deterioration, hospitalization and the use of IV antibiotics may be required). In addition to this a course of oral corticosteroids such as prednisolone is often introduced and may continue for up to two weeks. It is important to note that the use of steroids may majorly destabilise other comorbid medical conditions - for example, blood glucose control may deteriorate for those with diabetes, and marked mood elevation may be seen in those with a history of bipolar affective disorder. Care staff must be vigilant to these possibilities to allow early intervention.

A holistic approach to the management of COPD is also required. Maintenance of appropriate nutrition is important, and for those who smoke cessation must be recommended in the strongest possible terms. Anxiety and depression is quite common amongst those with serious COPD, and pharmacological intervention may be required for these conditions also. Old people with COPD should have a yearly influenza vaccination, as well as a pneumococcal vaccination in accordance with recommended schedules.

Quick Tip

Medications that may contribute to respiratory symptoms:

- Many medications can cause respiratory depression, which can be particularly significant for those with COPD. Examples include benzodiazepines, opioids, antipsychotics and some antidepressants.
- Medications are known to cause cough. The most example of this phenomenon is cough associated with ACE inhibitors (e.g. perindopril and ramipril) and Angiotensin Receptor Blockers (e.g. candesartan, telmesartan). The cough usually resolves after discontinuation of the medicine.
- For people with congestive heart failure, drug induced pulmonary oedema may contribute to a rapid development of severe breathlessness. Drugs such as verapamil, diltiazem and NSAIDs may contribute to this phenomenon.
- Some medications are associated with development of bronchospasm, particularly amongst those with a pre-existing history of asthma. Probably the most well-known example of this is associated with the administration of beta blockers (including timolol eye drops for the management of glaucoma). Other examples of medicines that can cause bronchospasm include aspirin and the Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)
- Some drugs cause pulmonary fibrosis. This type of lung toxicity may not be reversible and thus it is very important to be vigilant the onset of increasing breathlessness. Perhaps the most well-known example of this effect is pulmonary fibrosis associated with treatment with amiodarone.

Latest News

Ward MM in the biomedical literature

- Research accepted for publication in the Medical Journal of Australia, addressing the profile of potent oral opioid medication use in the Australian aged care sector.
- An invited editorial addressing the potential to implement strategies to reduce the incidence of drug related harm amongst the elderly, published in the prestigious international journal The Annals of Pharmacotherapy.
- A paper published in the Journal of Pharmacy Practice and Research describing the use of data analysis from RMMRs to promote better understanding of medication usage patterns and to elucidate opportunities for the prevention of drug-related harm.
- A case report describing the development of a meningioma in a resident prescribed cyproterone for the management of problematic sexual disinhibition in the context of dementia was published in the American journal The Consultant Pharmacist.

A range of other publications are currently under development and it is anticipated that these will be published in the latter part of 2016.

Notes from facilities serviced by Ward MM

Q. "How do people become vitamin B12 deficient and how is this treated?"

A. Vitamin B12, also referred to as cobalamin, is an essential cofactor in DNA synthesis and cellular metabolism, the processes where blood cells are made. Vitamin B12 has also important role in sustaining myelin in the nervous system. Vitamin B12 deficiency is common, more so amongst the elderly and during pregnancy. Other factors that can lead to vitamin B12 deficiency include impaired gastrointestinal absorption, poor nutrition and strict diets. Good dietary sources of vitamin B12 are only found in animal products, including lean meats, seafood, chicken, eggs and milk. A glycoprotein called intrinsic factor is required to allow adequate intestinal absorption of vitamin B12. Specific causes of deficiency include autoimmune gastritis, gastric and/or ileum resection, pernicious, anaemia, pancreatic insufficiency, malabsorption syndromes, intrinsic factor inadequacy, dietary insufficiency, chronic alcohol abuse, intestinal bacterial overgrowth or parasitic infections. The use of some medications, including metformin, Proton Pump Inhibitors (PPIs), H2 Antagonists, colchicine, and potassium is also associated with B12 deficiency.

Clinical presentation is often obscure, and signs vary in accordance with severity and underlying cause. Mild clinical features include fatigue and taste impairment, but neurological signs are usually not present. Moderate deficiency is associated with dyspnoea, palpitations, pallor & macrocytic anaemia, as well as glossitis (inflammation of the tongue), skin hyperpigmentation and subtle neurological signs such as sensory impairment, peripheral neuropathy, paraesthesia, loss of proprioception, depression & cognitive changes. Severe clinical features include profound megaloblastic anaemia, obvious neurological deficits (such as myelopathy, sensory loss, ataxia, spasticity or hyporeflexia, significant cognitive impairment, optic nerve atrophy, autonomic dysfunction, psychosis/delusions).

Measurement total serum vitamin B12 (serum cobalamin) is the best way to diagnose deficiency. Consensus suggests that deficiency would be regarded as a serum concentration $< 148\text{pmol/L}$ ($< 200\text{ng/L}$). Timely treatment is important, especially in severe cases, to prevent bone marrow deficits, thrombotic risk (due to elevated homocysteine) & irreversible neurological damage. IM hydroxocobalamin remains standard first line treatment due to long bodily retention. The recommended total dosing is between 3 - 10 mg over the course of 2 - 4 weeks. Severe deficiency with potentially irreversible outcomes requires prompt replacement at higher doses of 1 mg IM alternate daily for 14 - 20 days. Milder deficiency, or those without anaemia or neurological presentation, can be managed with 1mg IM twice/thrice weekly for two weeks. Oral cyanocobalamin may be an option in circumstances where IM injections are not tolerated, but high doses are required for equivalent results. Oral preparations should be avoided in severe deficiency and in cases caused by malabsorption. After initial IM dosing, fatigue and malaise can improve within 24-48 hours. Maintenance supplementation will generally be required for life, with suitable dosing of 1mg IM every 2 - 3 months, unless deficiency cause is reversible.



Meet your Ward MM Team Member

Serina Ramsamy has joined the WardMM finance team this year and based at Head Office. She has moved from South Africa with her family and is enjoying the change of lifestyle and being part of the WardMM team.

Most meaningful moments... has to be the birth of my children. With two adorable girls, we welcomed our third into the world, a boy! Yay! "Complete" now has a totally new meaning!

My biggest challenge... Moving countries! This is one move that I am still recovering from! 10 months down and a lifetime to go!

I'd be lost without... my mobile phone! Helps me stay in touch with my siblings and mum back in South Africa. Family is everything!