Ward MEDICATION MANAGEMENT

E- News

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From the Head of Clinical Development

Welcome to the May 2018 newsletter.

As I prepare for my overseas trip I hope have all had your "flu vaccine and are keeping warm as winter approaches.

This month's newsletter focuses on anaemia. Anaemia is often an underdiagnosed problem in the older population, as it is perceived that we "slow down" as we get older anyway, so it is sometimes overlooked.

Thinking about our frail elderly who may have a reduced appetite, inability to chew possibly due to ill-fitting dentures they may have reduced intake of iron rich foods like red meat.

Haemoglobin is a protein found in red blood cells and is responsible for carrying oxygen from the lungs to the rest of the body.

If there is a lower amount of red blood cells in the body, or there is a lower amount of haemoglobin within the available red blood cells, the blood cannot supply the body with an adequate amount of oxygen.

The symptoms of anaemia occur due to a lack of oxygen available in the bodies tissues.

What is anaemia

Anaemia has been defined by the World Health Organisation as a haemoglobin (Hgb) of <130g/L in men and <120g/L in women. There are many causes of anaemia which can be grouped into three types:

- Blood loss/excessive bleeding e.g. ulcers in the stomach, haemorrhoids
- Reduced production of red blood cells e.g. nutritional deficiencies such as iron, vitamin B12 and folate
- Increased red blood cell destruction e.g. Thalassemia

Symptoms of anaemia vary based on severity and can be asymptomatic, especially if onset is slow. Mild symptoms include fatigue, weakness and paleness and as it worsens can also include faintness, dizziness, sweating, weak/rapid pulse and rapid breathing. Severe symptoms may also include leg cramps during exercise, shortness of breath and chest pain. Anaemia can be more common in the older population because associated disorders are more common, however it is not a normal consequence of aging. Anaemia of chronic disease (e.g. Chronic Kidney Disease) and iron deficiency anaemia caused by abnormal bleeding are the most common causes in older people.

Anaemia is more common in the elderly

Symptoms of anaemia can lead to issues which reduce independent living in the older population and are associated with a shortened life expectancy. Studies have shown that for older people anaemia is associated with:

- Impaired mobility, increased frailty, muscle weakness and falls
- Mental health symptoms such as impaired cognitive performance, depressive symptoms and reduced quality of life
- Increased risk of developing dementia
- An increase in all-cause mortality

Feature Article:

Different types of Anaemia

Iron deficiency anaemia

Iron deficiency anaemia is one of the most common forms of anaemia in the older population. The most common causes include low dietary intake, iron malabsorption, parasitic disease and blood loss due to bleeding. The diagnosis should be confirmed with iron studies; the serum ferritin level reflects the body stores of iron. However, iron deficiency with normal ferritin levels may occur in infective, inflammatory, malignant or hepatic disease. Iron deficiency in older people without an obvious cause is commonly due to occult GI bleeding. The source of bleeding should be established, possibly via a gastroscopy or colonoscopy, and stopped if possible.

Drug treatment for iron deficiency anaemia is oral supplementation (ferrous salts are preferential). There are a range of ferrous salt forms available, all of which are equally effective and are absorbed to approximately the same extent. The different salts vary in the amount of elemental iron available, and doses are normally expressed in terms of elemental iron.

1mg of elemental iron is approximately equivalent to:

- Ferrous fumarate 3mg
- Ferrous sulfate (dried) 3mg
- Ferrous sulfate (as liquid) 5mg

Oral iron is also available in ferric form (iron polymaltose) but it is not as well absorbed as ferrous salts. Normal recommended dose for supplementation is 100-200mg of elemental iron daily.

Parenteral iron is rarely indicated but it can be considered in if oral iron is ineffective or side effects are intolerable.

Adverse effects of iron supplementation include a range of gastrointestinal effects (abdominal pain, nausea, vomiting, constipation, diarrhoea, black discolouration of faeces) which are all dose related. Older people are particularly sensitive to constipation. Ferrous salts are best absorbed if taken on an empty stomach (half an hour or two hours after food) however it GI symptoms are an issue it can be taken with or shortly after food to reduce incidence of these adverse effects. GI adverse effects can be reduced by starting at a low dose and gradually increasing over 2-4 weeks, by splitting the daily dose into 2-3, by dosing less frequently (e.g. on alternative days).

Supplementation should continue for three months after haemoglobin level has returned to normal to replenish iron stores. Long-term use of iron supplements should be avoided. Once treatment has been completed it is recommended to monitor full blood count and iron status regularly (e.g. every 3 months to one year).

Vitamin B12 or folate deficiency

Vitamin B12 or folate deficiency is another common cause of anaemia in older people. It is important to distinguish if the anaemia is caused by a deficiency in vitamin B12 or folate or both. Treatment with folic acid can improve the anaemia of vitamin b12 without preventing the associated neurological damage and vitamin b12 supplementation can mask the clinical features of folate deficiency. It is important to address the underlying causes of vitamin b12 deficiency (e.g. pernicious anaemia, Crohn's disease, inadequate diet) and folate deficiency (malabsorption, excessive urinary excretion (e.g. due to heart disease) or inadequate diet).

Medications can be a cause of folate deficiency (e.g. carbamazepine, trimethoprim, methotrexate, sulfasalazine) and vitamin B12 deficiency (e.g. proton pump inhibitors, H2 antagonists and metformin).

This type of anaemia responds well to supplementation and treatment is recommended as follows:

- Hydroxocobalamin injection 1000mg IM on alternative days for 1-2 weeks then reduce to a maintenance dose of 1000mg IM every 2-3 months
- Folic acid 5mg, orally, once daily for at least 4 months to ensure stores are replenished

Lifelong treatment with either may be required if the cause is due to malabsorption.

Anaemia in Chronic Kidney Disease (CKD)

The kidneys produce the hormone erythropoietin (EPO) which is responsible for initiation of red blood cell production in the bone marrow. In CKD there is a decrease in production of EPO and thus the bone marrow makes fewer red blood cells which results in less oxygen to the body and anaemia. Worsening renal function corresponds with lower EPO levels, so as CKD progresses so will the severity of the anaemia. Studies suggested that a creatinine clearance of <30ml/min was associated with a significant increased risk of anaemia with significantly decreased EPO levels.

Treatment of CKD anaemia is with erythropoietin agonists (darbepoetin alfa, epoetin alfa, epoetin beta and methoxy pegepoetin beta) which are all clinically equivalent and given by injection. Common adverse effects include hypertension, headache, flu-like symptoms, bone pain, peripheral oedema, diarrhoea and VTE. Haemoglobin should be monitored monthly for people using dialysis and every 3 months once stable in those with no dialysis.

Unexplained anaemia

Also known as 'idiopathic anaemia of aging'. Studies have suggested it occurs in approximately 20-30% of community dwelling elderly subjects and in up to 50% of anaemic nursing home residents. Even after a thorough clinical and laboratory evaluation, 17% of elderly hospitalised patients with low haemoglobin level had unexplained anaemia.

Causes may include an impaired hypoxic response (impaired hypoxia sensing, EPO production or bone marrow response to EPO), impaired bone marrow function, inflammation or hypogonadism.

For those with unexplained, mild, asymptomatic anaemia, treatment is not indicated. For those with unexplained, symptomatic anaemia treatment options include red cell transfusions or erythropoietin agonists.

Louise Johnston, Clinical Pharmacist, Ward MM

Quick Tip

Pneumovax

Pneumococcal disease is a bacterial infection (caused by Streptococcus pneumoniae) that can affect young children and older people. The bacteria can spread from person to person through secretions from nose and the throat (sites where they are commonly found).

It can cause pneumonia, bloodstream infection, meningitis (inflammation of membranes around the brain) and other issues which can sometimes lead to death.

Getting vaccinated is one way of decreasing the likelihood of the disease from spreading.

There are 2 types of pneumococcal vaccine:

1. One vaccine that covers 13 strains of pneumococcal disease. This is used for babies and young children. (Prevenar 13)

2. Another vaccine that covers 23 strains. This is used for older people or patients who have medical conditions that puts them at risk of getting pneumococcal disease. (Pneumovax 23)

Common side effects of pneumococcal vaccine includes: pain, redness and swelling at injection site, fever, feeling irritable, drowsiness, reduced appetite and body aches.

They are generally given once but a second shot may be required after >5 years depending on other clinical indicators.

Wei Jin Wong, Clinical Pharmacist, WardMM

Your Questions Answered

Notes from facilities serviced by Ward MM

It is quite common for us to receive similar enquiries from more than one facility in our network. In this section we summarise questions with a common basis – as a part of our "connect – network – share" ethos, we share the information with all of our facilities.

Q. "Are there any interactions between iron supplements and drugs?"

A. Iron-drug interactions of clinical significance may occur in many patients and involve a large number of therapies. Concurrent ingestion of iron causes marked decreases in the bioavailability of a number of drugs.

Iron significantly reduces the absorption of oral bisphosphonates and may reduce their activity, advice is to not take iron within 2 hours of a bisphosphonate (30 minutes for alendronate).

Iron can decrease the absorption of levodopa and carbidopa, they bind to ferric iron. This may impair control of Parkinson's disease, these medications need to be separated by as long as possible.

Iron reduces the bioavailability of methyldopa, reducing its activity and effect on BP control, separate administration by at least 2 hours and monitor BP.

Iron reduces the GI absorption of thyroid hormones and may reduce their therapeutic effects, administer these medications 4-5 hours apart and monitor thyroid levels.

Iron binds to some antibiotics e.g. quinolones (e.g. ciprofloxacin, norfloxacin) in the GIT, reducing their absorption and activity, separate dosing by 2 hours and iron forms a poorly soluble chelate with the tetracycline antibiotics (e.g. doxycycline) which reduces their absorption and anti-infective activity, separate dosing by at least 2 hours. Tetracyclines can also significantly reduce the absorption of iron.

Other medications can cause a decrease in absorption of iron and impair effectiveness. Oral iron supplementation should be taken on an empty stomach as phosphates, phytates and tannates in food bind iron and impair absorption. However due to tolerability of oral iron this may not always be possible. Antacids and calcium also effect iron absorption, iron should be taken two hours before or four hours after administration of these.

Lynda Carter, Regional Pharmacist Manager, Ward MM

Meet your Ward MM Team Member

Julian Soriano graduated from UniSA in 2014 and practiced as a community pharmacist until joining Ward MM at the end of 2017. He enjoys working with a great dedicated team at Ward MM and have had many opportunities to improve his professional skills. When he is not working he is an absolute football tragic (round ball) and currently plays for his high school's old collegiate team.

Most meaningful moments… Last year I had the opportunity to travel overseas to Italy and meet extended family whom I had not met before. It was amazing, despite our geographical and cultural differences, how similar we were.

My biggest challenge… If you ask the SA team who have been checking my reviews, it would be my spelling! (sorry Lynda, Wei Jin and Nat!)

I'd be lost without… Seeing as I'm a very social creature, it would have to be my family, friends and my girlfriend. Also Google Maps!