



From the Clinical Director

Steroids are amongst the most widely prescribed of all medicines in aged care, and can deliver benefits that can prove life-saving in many medical conditions. The human body produces its own corticosteroids, and adequate production is critical to maintaining good health. The corticosteroids are a form of hormone produced in the adrenal glands, and are involved in a broad range of physiological processes. Insufficient production of endogenous steroids may result in the so-called Addisonian crisis, which can occur after a person suddenly stops taking steroids. In this situation it is absolutely critical that a prompt diagnosis and intervention should be made. Thankfully, however, Addisonian crisis is relatively rare, and can be treated with the administration of steroid medicines.

A range of corticosteroids are available for therapeutic use in Australia, some almost exclusively administered in a topical or inhaled form, whereas others are formulated for administration by the oral route, by injection, or via other specialised formulations. Individual corticosteroids on the Australian market include drugs such as prednisolone, dexamethasone, betamethasone and hydrocortisone. Steroids regulate of stress and immune response, down regulate inflammation, and modulate various other functions such as carbohydrate metabolism and regulation of serum electrolytes.

Most corticosteroids commonly encountered in clinical use are glucocorticoids such as prednisolone. These medications are commonly prescribed for down-regulation of inflammation and modification of immune response. In the aged care context, common indications include the management of respiratory conditions such as asthma and COPD, the management of allergy, treatment of inflammatory bowel disease such as ulcerative colitis and Crohn's disease, and management of various rheumatological disorders including syndromes such as rheumatoid arthritis, Lupus, polymyalgia rheumatica (PMR), and various forms of vasculitis.

In some cases, steroids may be used for very specific situations such as the management of nephrotic syndrome (an important form of kidney disease), management of uveitis (a serious condition affecting the eye), and for downregulation of the immune system after organ transplantation. Topical forms of corticosteroids products are also widely used. The most common example of this relates to the use of dermatological products containing steroids such as betamethasone, hydrocortisone and triamcinolone. These medications are contained in commonly prescribed creams and ointments which are often very effective for inflammatory dermatological conditions such as eczema. Similarly, steroids such as fluticasone are formulated for inhalation using metered-dose inhaler devices: the principle behind this approach is to deliver the medication into the lungs where it can act locally in the affected tissue, and at the same time minimising systemic exposure to the drug.

Steroid medications can adversely impact the stability of a range of chronic medical conditions

Continued systemic exposure to corticosteroid medications is however associated with a range of important adverse effects. For this reason, clinicians generally approach the use of corticosteroids in a way that aims to achieve the use of the lowest reasonable dose for the shortest duration of treatment. After extended treatment with corticosteroids, many people develop Cushingoid symptoms that are relatively easy to recognise: these features include elevation of the blood pressure, obesity, facial rounding and reddening, deposition of adipose tissue between the shoulders ("buffalo hump"), and mood disturbances.

Steroid medications can adversely impact the stability of chronic medical conditions: this may mean that as well as having to introduce medications to manage the adverse effects associated with corticosteroids, it may also be necessary to make adjustments to the medicines used for the management of comorbidities. For example, prednisolone for management of symptoms of an exacerbation of COPD may create an adverse impact upon the control of diabetes, necessitating adjustments to the dosage of insulin. The use of corticosteroids is often associated with a period of relative medical instability - this can sometimes be a trigger for considering a targeted medication review.

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



Feature Article:

Adverse effects of steroid medications

Especially when used systemically and over a sustained period, steroid medications are associated with a wide range of adverse effects – these are more common at high doses.

- Oral steroids, particularly at a high dose and over an extended period, are associated with an increased risk of peptic ulceration. Where there is a pre-existing history of an ulcer or other predisposing factors (e.g. smoking, use of NSAIDs), prophylactic therapy (for example, a PPI) may be reasonable.
- Long term treatment is known to be associated with depression, although it can be difficult to separate this from depression associated with the serious illnesses that steroids are used to treat. Psychosis and mania (abnormal mood elevation) have also been reported.
- Corticosteroids can cause salt and water retention, and can exacerbate pre-existing congestive heart failure. Steroids can also cause or worsen hypertension.
- Steroids may cause hyperglycaemia, insulin resistance and diabetes. This issue is particularly important when dealing with patients who already have diabetes, or impaired glucose tolerance.
- Many people treated with steroids over an extended period may experience a loss of bone mineral density that may progress to osteoporosis. Less common musculoskeletal effects include avascular necrosis of the hip, and proximal myopathy.
- Steroid use is known to be associated with the development of cataracts and may also result in increased intra-ocular pressure that may be hazardous for those affected by glaucoma.

Some adverse effects associated with corticosteroid treatment are very subtle. Dermatological effects include the development of abdominal striae, hirsutism (development of unwanted hair growth) and appearance of acne. Continuing use of corticosteroids (including the use of potent topical steroids in creams and ointments) can lead to changes in the epidermal structures of the skin, including decreased activity of fibroblasts and alterations in the nature of fibrin deposits. The skin may become more friable (fragile or easily damaged), which may be particularly disadvantageous when combined with the association of steroids with compromised wound healing and increased tendency to infections, which may predispose to skin ulcers and pressure sores. However, the most commonly recognised skin effects seen with steroids include striae, telangiectasias, purpura and ecchymoses. For these reasons, application of corticosteroid products to the face and neck (where the skin is relatively thinner and more prone to damage) should be limited to treatment with less potent steroids (e.g. dilute hydrocortisone cream) for relatively brief periods.

Serious systemic side effects of inhaled steroids used for management of respiratory disease are uncommon but not unknown. Local effects include a proneness to oral thrush and the development of dysphonia (a hoarse voice), both of which can be reduced with the use of an appropriate spacer device and also by rinsing the mouth and throat with warm water after use.

As is always the case when using medications that are prone to cause serious side effects, it is necessary to weigh up the downside of the treatment with the potential benefits that can be achieved. Although steroids have many serious adverse effects, these drugs are often profoundly effective in reducing symptoms of important or dangerous illnesses, and in many cases the benefits realised through treatment can be transformative.

Quick Tip

Drugs and Coagulopathy

Coagulopathy is a term that has been used to describe any condition where the blood coagulation processes are impaired. Naturally, this effect is expected during treatment with anticoagulants and antiplatelet agents such as aspirin and clopidogrel (where the aim of therapy is to produce a diminished tendency to coagulation), but there is a range of other drugs that are known to be associated with potential coagulopathies. These include:

- Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), which may compromise platelet aggregation to a clinically significant extent.
- Treatment with some antidepressants, particularly SSRIS such as sertraline, citalopram and fluoxetine, as well as others including venlafaxine and duloxetine.
- Some complementary medicines such as high dose supplementation with fish oil products, garlic or ginkgo derivatives
- Any drug that can cause thrombocytopenia (decreased platelet count) may produce a bleeding risk – examples include recent cancer chemotherapy, and the effects of some anticonvulsant drugs such as valproic acid or carbamazepine.

Latest News

International Recognition

Dr Alderman recently travelled to Dallas Texas, where he was honoured to receive the **2016 Excellence in Geriatric Pharmacy Award**, international recognition of his work in caring for older people. For more information please refer to: <http://www.ccgp.org/content/alderman-chosen-2016-ccgp-award>

Ward MM in the Medical Journal of Australia

Data insights from the thousands of medication reviews performed by Ward MM staff have recently been published in the **Medical Journal of Australia** (MJA). A team led by Clinical Director Dr Chris Alderman analysed information about the prescribing of potent opioid medications in the Australian residential aged care sector. This research confirmed the widespread use of oxycodone products for older people in nursing homes, often in the absence of cancer pain. The rate of prescribing at relatively higher doses also appears to be increasing year on year. Some of the findings we also recently presented at the Medicines Management meeting of the Society of Hospital Pharmacists of Australia in Perth this month. Further research is planned to understand opioid prescribing patterns in more detail.

Leading the Way in Deprescribing

Dr Natalie Soulsby, Ward MM Associate Clinical Director, was a **keynote speaker** at the recent SHPA conference in Perth, and delivered a very well received discussion of deprescribing principles for an enthusiastic audience.

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. “What medications options have been used for the management of inappropriate sexual behaviours in dementia?”

A. Inappropriate sexual behaviours have been defined as behaviours that are “inappropriate, disruptive and distressing and that impair the care of the patient in a given environment”. The reported prevalence of inappropriate sexual behaviour in dementia (ISBD) varies considerably, in the range of 1.8 – 25%. The issue is more common in residential care facilities or hospital inpatients than community care

settings. ISBD can be seen in the context of mild cognitive behaviour, or in severe dementia and several studies found that this problem may be more common amongst those with vascular dementia. The evidence for the pharmacological treatment of ISBD is limited to case reports and there are no randomized controlled trials to date. Most patients described in the case studies have tried multiple medications before finding an effective treatment.

Hormonal anti-androgens in the form of medroxyprogesterone acetate (MPA) was found to be effective in a group of case reports describing 16 patients (all men). The dose ranged from 100 mg given intramuscularly (IM) every month to 500 mg IM weekly. Cyproterone acetate was also effective in three case reports (two men and one woman). These agents reduce serum testosterone levels leading to impaired sexual functioning. Oestrogen has been found to be effective in reducing ISBD in a small study of 17 men with dementia.

Antipsychotics have also been tried – several case reports describe the used of antipsychotics for the management of ISBD, including haloperidol, olanzapine, quetiapine and zuclopenthixol (given IM). Mechanism of action postulated is via dopamine antagonism and increased prolactin levels, decreasing libido; anticholinergic effects may reduce arousal and cause ejaculatory problems through alpha-1 adrenergic blockade. Antidepressants such as citalopram, paroxetine and clomipramine have been reported to be effective.

Other agents have also been the subject of case reports. One case report documents reduction in ISBD with rivastigmine in a woman with mixed dementia. However, donepezil was reported to cause increased libido and compulsive sexual thoughts in three cases (this was thought to be due to excess acetylcholine activity directly stimulating the sexual organs, causing arousal).



Meet your Ward MM Team Member

Duncan Yorkston joined Ward MM in April 2016 as clinical pharmacist. Originally from QLD, he worked as a community pharmacist after graduating from university in 2009. Looking for an option to expand his clinical skills he applied for the Ward MM pharmacist role shortly after moving to Melbourne. He has thoroughly enjoyed the challenges of this new role and he is looking forward to exciting new prospects with the addition of home medication reviews.

Most meaningful moments... receiving positive and encouraging feedback from GPs, facilities and WardMM staff is always rewarding. I also thoroughly enjoyed the opportunity to attend my first Masterclass event recently which was a great chance to learn and reflect on my current practice.

My biggest challenge... has been getting my skills and knowledge up to date in order to be able to efficiently deliver high quality RMMRs for our facilities.

I'd be lost without... Google maps. Being new to Melbourne, I don't know how I'd find my way around without it.