Postural or orthostatic hypotension is a common problem in older people, affecting up to 30% of the population over 65 years and up to 70% of residents in aged care facilities. It may lead to dizziness, syncope and an increased risk of falls. Up to two thirds of patients who fall have medication-related postural hypotension.

Postural hypotension is strongly associated with uncontrolled or undetected hypertension, increasing age and diabetes mellitus. The symptoms of dizziness can be unpleasant and disabling, as well as increasing the risk of falls.

What is postural hypotension?

Postural hypotension is defined as a sustained reduction of at least 20 mmHg in systolic blood pressure or 10 mmHg in diastolic blood pressure within 3 minutes of standing. It commonly occurs when a person moves from the lying or sitting to standing position.

Blood pressure measurement in both the lying and standing position (after two to three minutes), together with measurement of pulse rate should be recorded. The failure of the heart rate to rise in the presence of a fall in blood pressure may indicate the cause of the postural hypotension.

Causes

Postural hypotension is not a single disease process, but rather a sign or symptom of a variety of different illnesses and age groups. All residents with diabetes, hypertension or Parkinson’s disease should be routinely screened for postural hypotension. Other conditions known to cause postural hypotension include chronic renal failure or dialysis, aortic stenosis and varicose veins.

Prolonged bed rest or deconditioning as well as dehydration may cause postural hypotension.

A review of the resident’s medications (RMMR) may identify possible medication-related causes. Medications known to cause or exacerbate postural hypotension include:

- Antiparkinsonian drugs (e.g. levodopa, dopamine agonists)
- Thiazide diuretics (e.g. hydrochlorothiazide)
- Vasodilators (e.g. nitrates, hydralazine)
- Alpha-blockers (e.g. prazosin)
- Beta-blockers (e.g. propranolol, labetalol)
- ACE inhibitors (e.g. perindopril, enalapril, ramipril, fosinopril, lisinopril, quinapril,trandolapril)
- Opioids (e.g. morphine, oxycodone)
- Tricyclic antidepressants (e.g. amitriptyline, imipramine)
- Phenothiazine antipsychotics (e.g. chlorpromazine, trifluoperazine)

Whilst the current evidence supports the use of two or more antihypertensives to control blood pressure, the use of beta-blockers and three or more antihypertensives is associated with postural hypotension. Close monitoring of signs and symptoms of postural hypotension is needed when multiple agents are prescribed.

Signs and symptoms

The symptoms of postural hypotension are primarily associated with decreased blood flow to the brain. Severe postural hypotension can cause syncope or fainting.

Older persons with postural hypotension may complain of dizziness, faintness, syncope, visual changes or lightheadedness on standing. Other symptoms may include visual blurring, chest pain (angina pectoris), lower back pain, incontinence, impotence and dry skin from moisture loss through sweating. Frail older people may present with cognitive impairment or worsening of their cognition.

Postural hypotension is more likely to be present in the morning before breakfast than during the rest of the day.

Consequences

Postural hypotension may have serious consequences in the older person. These include fear of falling, dizziness, loss of consciousness, impaired quality of life, loss of independence, falls, fractures and increased mortality.
An increased risk of falls, cerebrovascular events (strokes, TIsAs), and death have been reported in patients with postural hypotension.

**Non-drug treatment**

It is generally considered best to start with non-pharmacological treatment and then proceed to drug treatment only when this fails. The initial step in the evaluation of patients with postural hypotension is the exclusion of preventable causes. The relationship to meals, exercise, straining and standing up after getting out of bed in the morning should be established. Sitting on the edge of the bed for 5 minutes before standing, calf muscle exercises, adequate daily fluid intake, avoiding hot environments may be helpful. Elderly persons should be assisted to avoid sudden standing after meals.

Use of thigh-high compression bandages has been shown to be beneficial.

Adequate bowel management strategies to avoid excessive straining should be part of the management plan. Large meals should be avoided as blood pressure is lowered with eating. Small frequent meals with reduced carbohydrate content are recommended.

Liberal salt intake can be useful in patients who can tolerate increased fluid retention and where there is no contraindication e.g. heart failure and hypertension.

**Drug treatment**

Changing, stopping or decreasing the dose of offending medications is the first step in management. Additional medication therapy is usually only necessary in residents with significant disability due to postural hypotension.

Midodrine is an alpha agonist which increases BP by increasing peripheral resistance. It is not marketed in Australia but may be available through the SAS.

Clonidine (Catapres) produces minor improvements in postural drop.

Fludrocortisone (Florinef) is a potent mineralocorticoid that promotes renal sodium reabsorption and increases blood volume. The initial dose is usually 0.1mg once or twice daily, increasing up to 0.4mg daily. Hypokalaemia, peripheral oedema, weight gain, and headache are common side effects. Fludrocortisone should be used with caution in patients with heart failure (HF).

If the symptoms are still not controlled, dihydroergotamine (Dihydergot) may be added in doses of 2.5 to 5 mg orally, 3 times daily or 0.5 to 1.0 mg SC, as required up to 3 times daily.

Caffeine in the form of coffee, tea or caffeine tablets can provide some symptomatic relief. Desmopressin may be of value in patients with nocturnal polyuria.

Other medications shown to improve postural drop include potassium chloride and yohimbine. In people with anaemia, erythropoietin can be tried.

**Summary**

Postural hypotension is very common in the older people, with prevalence rates as high as one-third. Care must be taken before starting any medication in the older person because of the increased risk for adverse reactions. The choice of drug to treat postural hypotension depends on the other medications being taken as well as other comorbid conditions. Non-drug treatment strategies should be considered first and continued if drug treatment is considered warranted.

As with any drug treatment in the older person, start low, go slow and monitor frequently.

**References:**

Age and Ageing 2012;41:587-594.
Age and Ageing 2010;39:51-56.
Therapeutic Guidelines