

Postural (Orthostatic) Hypotension Policy & Guideline

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

This guideline covers the identification and management of orthostatic hypotension in adult inpatients.

This guideline is for use by the following staff groups :

All qualified healthcare professionals involved in the identification and management of orthostatic hypotension.

Lead Clinician(s)

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This is the most current document and is to be used until revised version available.

Key Amendments to this Guideline

Date:	Amendment	By:
17 th December 2020	Creation of policy. Identification of orthostatic hypotension merged with new management of orthostatic hypotension guideline.	Ruma Dutta, Catherine Jackson, Sarah Pittaway Sarah Craister & Alice Elderton
December 24	Document extended for 6 months whilst under reiew	Dr Powell

1. Introduction

Postural (orthostatic) hypotension is defined as the inability to maintain blood pressure on assuming an upright position from supine, leading to a drop of at least 20 mmHg in systolic pressure or a reduction in diastolic pressure of at least 10 mmHg.

Orthostatic hypotension can be present at any age, but prevalence increases with age. Up to 50% of older people have orthostatic hypotension due to a combination of age-related physiological changes including increased baroreceptor sensitivity, side-effects of polypharmacy, especially those with vasoactive potential, and a higher incidence of chronic disease which could impact of blood pressure in general.

Orthostatic hypotension can cause dizziness, nausea, blurred vision, sweating, lethargy, falls and syncope.

The diagnosis of orthostatic hypotension can be made following recording of lying and standing blood pressure measurements. Demonstration of a postural fall in blood pressure with symptom reproduction is necessary for the diagnosis of orthostatic hypotension (*Reeve 2000*).

In order to diagnose orthostatic hypotension it is essential that blood pressure measurement is undertaken accurately using standardised guidelines and equipment (*Vloet et al 2002*).

2. How to record lying and standing blood pressure

Patient must lie supine (flat on back) for at least 5 minutes or until at least two consecutive blood pressure measurements are the same. If patient is unable to lie flat – lie them as far down as possible but note any change of position from supine. Sitting upright is not appropriate.

Of measuring brachial artery blood pressure, ensure that the arm is supported at heart level, the correct sized cuff is used (the cuff must cover 80% of the patient's arm), the cuff is placed over the brachial artery and if measured manually that the result is recorded to nearest 2 mm Hg.

Then measure again in the standing position as per the regime below. If unable to stand use whatever support, standing aids or equipment is necessary. If still unable to stand, or if intolerant of standing, a sitting BP can be used as a rough surrogate provided legs dangling and body as close to vertical as possible and that this position this is documented.

The blood pressure is recorded with the arm supported at heart level:

- Within the first minute of standing/upright
- After 3 minutes standing/upright (would continue to record if BP still dropping and patient able)

Document the lowest blood pressure measurement; a clinically significant drop in blood pressure is classified as 20mmHg systolic or 10mmHg diastolic.

Record the time of the day that the recordings were taken with reference to recent meals and caffeine consumption and record any symptoms that the patient complains of: dizziness, lightheadedness, loss of balance, weakness, syncope or fainting.

If the patient has severe symptoms then stop the measurement and lie the patient back down until the symptoms ease.

3. Equipment

Blood pressure may be recorded using a manual, aneroid sphygmomanometer or by a non – invasive automated device.

As with all medical devices, use should be in accordance with procedures recommended by the manufacturer. All automated medical devices should be properly serviced and maintained and the manual aneroid sphygmomanometer should be checked and calibrated every 6-12 months.

For further information on blood pressure recording please refer to the Royal Marsden Hospital Manual of Clinical Nursing Procedures can be found on the front page of the Trust intranet Nursing and Midwifery link under policies and guidance.

4. Diagnosis

Undertake the necessary testing to confirm a diagnosis of orthostatic hypotension as above.

Ambulatory blood pressure monitoring should be ordered in patients with a history suggesting symptomatic orthostatic hypotension, particularly when orthostatic hypotension is not detected during regular autonomic testing.

Tilt-table test may be useful in certain patients when orthostatic hypotension is not detected during the posture test and the patient gives a history suggestive of orthostatic hypotension.

5. Causes of orthostatic hypotension

It is important to include the cause (if known) of the orthostatic hypotension alongside the diagnosis in the notes.

The prevalence of orthostatic hypotension is greater in older people, but varies widely depending on the underlying medical condition.

Orthostatic hypotension may result from neurogenic and non-neurogenic causes.

Heart rate should be taken at the same time as the blood pressure measurements, as the expected tachycardia in response to hypotension is blunted when there is an underlying neurogenic cause e.g. peripheral neuropathy.

Neurogenic causes include:

- Primary autonomic failure
 - Parkinson's disease with autonomic failure
 - Lewy Body Dementia
 - Pure autonomic failure (a Lewy body disease in which mostly the peripheral autonomic nerves are involved, without a movement disorder phenotype)
 - Multiple system atrophy (MSA, previously called Shy-Drager syndrome), which can have atypical parkinsonian features (MSA-P) or symptoms of cerebellar ataxia (MSA-C)

In patients who have orthostatic hypotension caused by impaired autonomic cardiovascular reflexes, the increase in heart rate that accompanies the fall in blood pressure is typically diminished (<10 bpm). However, in some patients, particularly those with multiple system atrophy, the heart rate may increase as much as 20 bpm when the fall in blood pressure is profound. Thus, the ratio of heart rate increase to the blood pressure fall is a more precise measure of baroreflex impairment.

- Secondary autonomic failure
 - Diabetes
 - Amyloidosis
 - Uraemia
 - Spinal cord injury

Non-neurogenic causes include:

- Drug induced
 - Alcohol, vasodilators, diuretics, phenothiazines and antidepressants
 - See medication review for further information
- Volume Depletion
 - Haemorrhage, diarrhoea, vomiting, fever or hot temperatures

A normal rise in heart rate accompanying the fall in blood pressure is typical of patients with depletion of intravascular volume (from dehydration or haemorrhage) or impaired vasoconstrictor tone (usually caused by drugs).

- Other
 - Low cardiac output due to cardiac impairment from a myocardial infarction or aortic stenosis, deconditioning due to hospitalisation and bed rest, prolonged standing causing reduced venous return or loss of normal mineralocorticoid secretion.

In a male patient over 65 years of age, with significant postural drop, history of fainting, dizziness, tachycardia, pale with pain in the tummy or lower back which does not go away- consider AAA and check for drop in Hb and urgent USS of aorta.

6. Management

The treatment of orthostatic hypotension recommended by European Federation of Neurological Societies (EFNS) guidelines begins with patient education and a trial of non-pharmacological interventions. The emphasis is not treating the BP measurements or modifying the disease course, but to decrease symptoms, improve quality of life and prevent complications such as falls and supine hypertension.

Non-pharmacological management

The aims are to increase intravascular volume, improve venous return and to avoid triggers.

- **General lifestyle advice/physical counter measures**

- Increase non caffeinated and non-alcoholic fluid intake to 2 litres per day (3.5 pints)
- Eat salty snacks (if no history of heart failure)
- Eat several small meals instead of large meals ideally high fibre foods
- Avoid excessive alcohol consumption and drink within NHS recommendations of no more than 14 units a week on a regular basis and to spread your drinking over 3 or more days
- Sleep with head raised (if possible 5 inches above horizontal/at 45 degrees)
- Avoid standing still in hot temperatures both indoor and out e.g. long hot showers or baths
- Avoid standing still or sitting for longer than you can tolerate
- Exercise regularly; swimming, walking, etc.
 - Certain exercises can help circulation and reduce symptoms. They can be done lying down or in sitting, and include move ankles up and down, rotating ankles, clenching & unclenching calf muscles, marching on the spot and crossing/uncrossing legs. You can also do certain exercise in standing; such as marching on the spot and crossing/uncrossing legs

- **Advice on changing posture**

- Bolus drinking: Drink 400-500ml of fluid (water) before getting out of bed 5 minutes prior to mobilising. The effects of this can last up to 90 minutes.
- When getting up out of bed, sit on the edge of the bed for a few minutes before standing. If you feel dizzy, stay sitting or lie back down. Have a long drink and alternately contract and relax leg and arm muscles as able
- Prescribed compression garments: Evidence suggests the most effective compression is applied from abdomen to ankle
 - Abdominal binders alone can help increase systolic blood pressure more effectively than compression stockings. This should be put on when lying down before rising and removed after resuming the supine position; can be provided by an Orthotist (This referral can be made by a Physiotherapist)
 - In patients who cannot tolerate abdominal binders prescribe class 2 above knee compression stockings for wear during the ambulant daytime hours
 - Compression stockings may be contraindicated in patients with evidence of leg ischemia due to peripheral vascular disease, or extensive skin lesions on their lower legs

Please ensure the patient is given the Trust 'Postural Hypotension' leaflet (WAHT-PI-0482).

Medication review

Recognition and discontinuation of drugs that cause orthostatic hypotension is one management step by the treating health professional. The most frequent offending agents are diuretics, antihypertensive agents (primarily sympathetic blockers), antianginal drugs (nitrates), alpha-adrenergic antagonists, antidepressants and dopamine agonists. Lowering the dose or withdrawing the medication where possible may be all that is required to correct orthostatic hypotension. This should be undertaken by a health professional taking into account the patient's condition and wishes as with all medication reviews. If in doubt consult a pharmacist or a geriatrician.

Please do not stop/change Parkinson's medication without discussion with a Geriatrician or the Consultant Neurologist in charge of their care.
Pharmacological management

Should be considered if the non-pharmacological strategies have been unsuccessful and there are recurrent symptoms:

1st line- Fludrocortisone

Patients who have an inadequate response to simple non-pharmacological measures may benefit from Fludrocortisone. Fludrocortisone is used off license for the indication of orthostatic hypotension. It is a synthetic mineralocorticoid with negligible glucocorticoid effects. It enhances renal sodium reabsorption and increases plasma volume.

Pre-treatment

- Assessment of contraindications and Cautions (see current British National Formulary); isolated bipedal oedema is not a contraindication
- U+E, glucose, BP, weight, FBC, BMD, Lipids, supine blood pressure

Initially Fludrocortisone 100 micrograms daily titrated to a usual maximum of 200 micrograms daily.

Before each dose titration recheck lying and standing blood pressures and U+Es. Monitor for signs of adverse drug reactions such as volume overload before each dose titration at least once weekly until dose and condition stable. Discontinue if blood pressure in either position increases above 180/100 mm Hg or is considered clinically significant or there is significant volume overload or untreatable hypokalaemia.

2nd line- Midodrine

Midodrine is a pro-drug of desglymidodrine. Desglymidodrine is a sympathomimetic that acts on peripheral alpha adrenergic receptors, causing vasoconstriction of the venous system and increased peripheral arterial resistance, resulting in an increase in blood pressure.

Midodrine is licenced for the treatment of severe orthostatic hypotension due to autonomic dysfunction when corrective factors have been ruled out and other forms of treatment are inadequate (EMC 2017). It is recommended as a second-line option, alone or in combination with, for example, fludrocortisone. It is approved by the APC for GP prescribing if initiated by a specialist (Consultant Geriatrician/Cardiologist/Neurologist or other specialist experienced in the management of neurocardiovascular instability)

Pre-Treatment

- U&E's, LFTs
- Assessment of Contra-indications and Cautions (see current British National Formulary)

Ideally Midodrine is given first thing in the morning (before getting out of bed), mid-morning and mid-afternoon.

- For older patients introduce 2.5 milligram once daily and then increase to twice daily after one week; then review
- Usual maintenance dose; 2.5 milligram three times daily (Last dose should be taken at least 4 hours before bedtime)
- Increase as clinically indicated according to response; up to a maximum maintenance dose of 5-10 milligram three times daily (Last dose should be taken at least 4 hours before bedtime)

A careful evaluation of the response to treatment and of the overall balance of the expected benefits and risks should be undertaken with the person before any dose increase or advice to continue therapy for long periods. If supine hypertension occurs, which is not overcome by reducing the dose, consider stopping treatment with Midodrine after discussion with the patient depending on the severity of the symptoms of orthostatic hypotension.

Treatment should be guided by symptom control and supine blood pressure levels not measured changes in blood pressure only.

Summary

- 1 • Postural Hypotension identified
- 2 • History and investigation of causes
- 3 • Non-Pharmacological measures
- 4 • Medication review
- 5 • Fludrocortisone if not C/I
- 6 • Midodrine (specialist administration)

7. Monitoring and compliance

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the Policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: <i>(Responsible for also ensuring actions are developed to address any areas of non-compliance)</i>	Frequency of reporting:
	WHAT?	HOW?	WHEN?	WHO?	WHERE?	WHEN?
All	Identification of orthostatic hypotension is as per guideline	Quality/Audit	Weekly	Matron/Ward Manager	Quality Hub/Divisional Governance Meetings	Monthly
All	Management of orthostatic hypotension is as per guideline	Audit	Annually	Doctors/Frailty Practitioners	Falls Steering Group	Annually

8. References

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9. Background

Contribution list

This key document has been circulated to the following individuals for consultation;

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This key document has been circulated to the chair(s) of the following committee's/groups for comments:

Committee
Falls Steering Group
Speciality Medicine Divisional Governance Meeting
Medicines Safety Committee

a. Approval process

This guideline has been approved by the Clinical Governance Group and Key Documents Team.

b. Version control

This section should contain a list of key amendments made to this document each time it is reviewed.

Date	Amendment	By:
17/12/2020	Creation of policy. Identification of orthostatic hypotension merged with new management of orthostatic hypotension guideline.	Ruma Dutta, Catherine Jackson, Sarah Pittaway Sarah Craister & Alice Elderton

Supporting Document 1 - Equality Impact Assessment Tool

		Yes/No	Comments
1.	Does the policy/guidance affect one group less or more favourably than another on the basis of:		
	Age	No	
	Disability	No	
	Gender reassignment	No	
	Marriage and civil partnership	No	
	Pregnancy and maternity	No	
	Race	No	
	Religion or belief	No	
	Sex	No	
	Sexual orientation	No	
2.	Is there any evidence that some groups are affected differently?	No	
3.	If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?	No	
4.	Is the impact of the policy/guidance likely to be negative?	No	
5.	If so can the impact be avoided?	N/A	
6.	What alternatives are there to achieving the policy/guidance without the impact?	N/A	
7.	Can we reduce the impact by taking different action?	N/A	

Supporting Document 2 – Financial Impact Assessment

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources?	No
2.	Does the implementation of this document require additional revenue?	No
3.	Does the implementation of this document require additional manpower?	No
4.	Does the implementation of this document release any manpower costs through a change in practice?	No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff?	No
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval.