Orthostatic Hypotension

Overview

Orthostatic hypotension (OSH) is a decrease in blood pressure between position changes, from supine to sitting and to standing. Use the appropriate cuff and support the arm, level with the heart.

Patients with orthostatic hypotension might report lightheadedness or faintness. They might have no symptoms. They might have symptoms other than lightheadedness. They might be unable to report symptoms, e.g., due to cognitive impairment.

PTs are often taught that meeting 2 of the following 3 criteria leads to a label of OSH, when blood pressure is checked in supine after 5 minutes rest lying flat and after standing for 1 minute:

- Systolic Blood Pressure (SBP) decrease of at least 20 mmHg
- Diastolic Blood Pressure (DBP) decrease of at least 10 mmHg
- HR increase at least 20 beats/ min

But in practical terms, if patients are potentially symptomatic of, or otherwise experiencing effects of, impaired capacity to compensate for hemodynamic changes associated with the effects of gravity in different positions, we should look to reproduce those symptoms to identify their cause and contribute to treatment strategies.

Patients might be orthostatic immediately upon standing but compensate after a brief latency; they might become increasingly orthostatic as standing position is maintained; their BP might improve with the venous return stimulated by physical activity; their BP might decrease with activity.

Pathophys

Normally SBP drops when we stand from a sitting or supine position, and carotid baroreceptors stimulate sympathetic vasoconstriction to maintain perfusion to the brain.

If venous return is impaired, because of a problem affecting the sympathetic response directly, or a medication blunting that response, or hypovolemia, or if that response becomes insufficient for maintaining cerebral perfusion (e.g., because of vascular stenoses), symptoms may arise.

Evaluating compensatory HR response can provide a clue to whether the cause of OSH is neurogenic. If SBP drops by 10 mmHg, HR should increase, in static position, by at least 5 beats/ min as a compensatory response. A response below this ratio suggest a neurogenic cause, unless there are medications (e.g. Beta blockers) or other factors which might blunt the HR response to a decrease in SBP.

PT Evaluation Management

Many falls occur because of orthostatic hypotension. Immobility can quickly worsen OSH in patients that had mild or asymptomatic cases prior to hospitalization.

We can use standard PT techniques to reduce the impacts of OSH on our patients: frequent mobility, incremental advancement of activity when needed, compression stockings (though the effectiveness of these depends upon the cause of the OSH), and "safety nets" with mobility, like a chair follow or a strategically positioned rest chair in the hospital setting. Supine exercise prior to position changes can help promote venous return from the LEs.

We should also judiciously monitor for symptoms other than lightheadedness/ faintness/dizziness. A decrease in alertness, pain at the posterior neck, chest or abdomen may present. We should carefully monitor for provoking factors, such as symptoms after a patient eats a meal, or voids, or moves their bowels.

PT Measures app