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Orthostatic Hypotension

Although often asymptomatic, a condition that may be characterized by dizziness and lightheadedness upon rising from a chair or bed.

- postural systolic hypotension is indicated by a drop of more than 20 mm Hg in systolic blood pressure after moving from a lying to standing position.
- Orthostatic hypotension is related to a decline in the autonomic nervous system's ability to expand or contract blood vessels. Orthostatic hypotension is indicated by the presence of postural systolic hypotension **and** a 10mm Hg drop in diastolic pressure.

Aging Changes That Contribute to Orthostatic Hypotension

- Cardiovascular changes: low cardiac output, reduced cerebral vascular sufficiency; pooling in the venous system of the lower limbs.
- less responsive baroreflex mechanism (11-30% population; increased incidence with increased age) - unable to compensate for the volume shifts in the circulatory system that occur with position changes.
- increased sensitivity to post-meal circulatory changes (postprandial effect).
- increased sensitivity to hypertensive medications.

Conditions that can contribute to orthostatic hypotension

- hypovolemia related to dehydration or hemorrhage.
- disorder of the central or peripheral nervous system (e.g. stroke, parkinsonism).
- metabolic or endocrine disorders (e.g. malnutrition, diabetes).
- prolonged bed rest or sedentary activity, deconditioning.
- medications (e.g. nitroglycerine, apresoline, minipress, phenothiazine, antidepressants, centrally acting psychotropics, antihypertensives, ganglionic blocking agents, sympatholytic agents; BPH medications such as Tamsulosin).

Prevention Strategies

- apply elastic stockings before rising.
- isometric exercises – purposeful, rhythmic tensing and relaxing of muscle groups (e.g. moving the ankles, tapping the feet; tightening the calf muscles, bending the knee, lifting the leg up and down, walking).
- maintain adequate hydration and sodium levels (e.g. 1000 cc/day non-caffeinated fluid intake, serum sodium levels 135-145 mEq/L).
- teach the individual or care assistant the importance of changing position slowly and in stages, waiting until the dizziness clears before moving again (for some persons, this may include slowly rolling up the head of the bed before transferring).
- teach the individual or care assistant to plan ahead (e.g. scheduled toileting to eliminate a hurried rush to get to the toilet from the bed).
- teach the individual or care assistant to have aids such as walkers or canes easily accessible to assist in position changes.

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- identify individuals who have actual or potential orthostatic hypotension, alleviate other factors as much as possible and monitor blood pressure on a regular basis.

Procedure Recommendation

- Include postural blood pressure check on admission to establish a base line
- If a hypotensive or anti-hypertensive medication is initiated:
 - monitor for orthostatic hypotension prior to first dose;
 - twice weekly for two (2) weeks, and
 - monthly

SKILL REVIEW

Taking a lying & standing blood pressure

- Assessment for potential or of actual orthostatic hypotension including taking a lying & standing blood pressure.

Using the same arm for both readings

- first measure the supine blood pressure after the individual has been lying flat for at least 1 hour.
- second measure the standing blood pressure after the individual has been standing (or if cannot stand, sitting) for 1-2 minutes.
- chart the reading – notify the physician if BP is out of expected range.

Getting the most accurate reading

- use the right size cuff (e.g. very small residents may need a pediatric cuff, very large residents may need an oversized cuff).
- ensure the correct position (the lower cuff edge should be 1 inch above the inner elbow, bladder centred over brachial artery, clothing removed).
- avoid taking the reading on the individual's paralyzed side, or if the arm is edematous.
- wait the full 1-2 minutes between readings to ensure the circulatory volume shift has occurred.

References

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- 2) Matteson, M.A., McConel, E. S., & Linton, A. D. (1997). Age-related Changes in Cardiovascular System (Chapter 7). *Gerontological nursing. Concepts and Practice* (pp. 331-332). Philadelphia: Saunders.
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- 4) Rubenstein, L. Z., Josephson, K. R., & Osterweil, D. (1996). Fall and Fall Prevention in the Nursing Home, *Clinics of Geriatric Medicine*, 12 (4), 881-902.