

4.1.4

Hypotension

Hypotension is low blood pressure. It is generally described as systolic blood pressure that is less than 90 mmHg and/or diastolic pressure that is less than 60 mmHg. However, there are individuals who present with blood pressure this low but have very little in the way of symptoms. Therefore, in practice, the term hypotension may only be used for low blood pressures that cause symptoms like dizziness or fainting.

Orthostatic Hypotension

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Orthostatic hypotension refers to the atypical, sudden drop in blood pressure that occurs when a person stands after lying down or being seated. People who experience orthostatic hypotension often lack the necessary circulatory reflexes (vasoconstriction and increased heart rate) or blood volume to continue to supply enough blood to the brain directly after standing. This causes inadequate amounts of blood and oxygen to reach the brain, which is why the individual feels dizziness or experiences **syncope** (fainting).

There are various causes for orthostatic hypotension. One common cause is reduced blood volume that can be due to excessive use of diuretics, excessive diaphoresis, vomiting, diarrhea, inadequate fluid intake, excess sweating, and loss of fluid due to prolonged bed rest. Many drugs can have the side effect of orthostatic hypotension. The most common ones are antihypertensive drugs, antianginal drugs, and psychotropic drugs. These drugs can cause excessive vasodilation or impaired circulatory reflexes.

Orthostatic hypotension becomes more prevalent with increased age. This is due to decreased activity of compensatory mechanisms necessary to maintain blood pressure such as a reduced ability to increase heart rate and force of contraction as well as decreased ability to increase peripheral resistance. Elderly persons also have reduced blood volume and skeletal pump function that further complicates the problem. Because veins are low-pressure and thin walled, they rely on skeletal muscle to compress them and allow blood to return to the heart. These muscle-pumps are important in the gastrocnemius and soleus muscles of the lower extremity. Muscle-pump failure causes problems related to blood stasis and venous insufficiency. Prolonged bed rest and immobility that the elderly may experience also bring about a decrease in blood volume over just a few days. Weakness of the skeletal pump muscles takes longer to happen but also contributes to orthostatic hypotension.

Orthostatic hypotension may also be caused by damage to nerves that can impair autonomic nervous system reflexes necessary to maintain blood pressure. This damage can be due to peripheral neuropathy associated with diabetes mellitus, spinal cord injury, and cerebral vascular accidents such as stroke. In neurodegenerative conditions such as Parkinson's disease and Shy-Drager syndrome, autonomic nervous system neurons may also fail which then brings about symptoms of orthostatic hypotension.



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