

The pulse changes and aging

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[abstract] Aging is a major risk factor for cardiovascular disease. Aging causes both structural and functional changes in large elastic arteries that engender stiffness, which cause profound changes in arterial pressure waves, including increases in the augmentation index and wasted left ventricular energy. Clinical manifestations of central elastic artery stiffening are elevated peripheral systolic blood pressure and pulse pressure. However, the central hemodynamic consequences of elastic artery stiffening may have greater clinical relevance. Enhanced vascular stiffness may arise not only as a result of age-related and irreversible degenerative arteriosclerotic changes, but also as a result of reversible endothelial dysfunction which influences on the dilation of muscular arteries. Genetic and environmental factors are both involved in the modulation of the increase in arterial stiffness with age. Novel therapeutic approaches available to reduce the increase in arterial stiffness with age have been proposed recently and should be developed further. Therapeutic trials using such medications will be necessary to demonstrate an improvement in morbidity and mortality on the basis of influencing vascular stiffness.