

Effects of Aging on CV System

most noticeable effect of aging on CV system is stiffening of arteries

heart has to work harder to overcome resistance

ventricles enlarge, esp left ventricle

 may get so thick that not enough space to pump blood effectively

valves may thicken and become calcified

impulse conduction along conducting system becomes more difficult

 ‡ increase in arrhythmias or heart block

muscle cells die

 heart becomes weaker

 ‡ lower tolerance to physical activity

Atherosclerosis is main change seen in blood vessels with age

 stiffening of arterial walls with increasing deposits of collagen fibers &
 declining resilience of elastic fibers

also decline in responsiveness of baroreceptors so less vasomotor response
to changes in blood pressure

results: quick move from lying to standing, blood is drawn away from brain,
can cause dizziness or fainting

Disorders of the Circulatory System

Heart Disease

leading cause of death in US

‡ 30% of deaths/yr

most common form is coronary atherosclerosis

often leading to myocardial infarction

Abnormal Blood Pressure

Hypotension

low BP ‡ systolic <100

usually not a cause for concern

‡ often associated with long healthy life

but.

in some may produce dizziness when standing up too quickly
(esp in older patients)

may be due to severe bleeding and lead to circulatory shock
may hint at poor nutrition eg. <blood proteins

Hypertension

if transient is normal:

adaptation during fever, exercise, strong emotions

if persistent is a cause for concern

30% of those >50 yrs old suffer from hypertension

usually asymptomatic for first 10-20 yrs= silent killer

high blood pressure affected by:

gender: men slightly higher risk of HBP

age: risk increases after age 35

heredity/race: African Americans at higher risk

diet: any factors leading to obesity

prolonged hypertension is a major cause of:

heart failure

vascular disease

kidney failure

stroke

aneurysms

Stroke

sudden death of brain tissue occurring when cerebral atherosclerosis,

thrombosis or hemorrhage of a cerebral aneurysm cuts off blood flow to part of the brain.

effects range from unnoticeable to fatal depending on extent of tissue damage and function of affected tissue

Varicose Veins

can occur anywhere on body but most common on legs

veins in legs are largest in body and must counteract gravity to get blood back to the heart

veins become enlarged and valves fail to prevent backflow of blood

often associated with tired, achy, or feeling of heavy limbs

most common in superficial saphenous veins

‡ they are poorly supported by surrounding tissues

many factors contribute to likelihood of varicose veins:

heredity

age esp occur betw 18 and 35 yrs, peaks betw 50 and 60 yrs

gender women are 4 to 1 times more likely to get them

pregnancy sometimes form during pregnancy (8-20% chance) then disappear afterwards

lifestyle: prolonged sitting or standing daily

Transposition of the Great Vessels

the child will develop normally until they begin to walk

the right ventricle will be unable to pump enough blood through systemic circuit