Metabolic Syndrome

Definition
- MS is the link between insulin resistance, hypertension, hyperlipidemia, impaired glucose tolerance and atherosclerotic cardiovascular disease.
  - Key pathogenesis: insulin resistance leading to lipid accumulation in tissues that normally do not store them.
- Second hit theory: represented by oxidative stress, which activates the inflammatory cascade and generates reactive oxygen species (ROS) such as hydroxyl radicals and superoxide anions.

Symptoms
- In addition to those diseases noted above, patients present with an increased waist size, i.e. “lipid partitioning.” (Greater than 40 inches for males and 35 inches for females.)
- Most common in African American and Asian populations

Dangerous associations
- Macroscopic changes: metabolic syndrome can relate to many other severe health concerns
  - Depression, cataracts, erectile dysfunction, liver ds, organ damage to include just some
- Microscopic changes: changes in serum chemistry
  - Fibroblast growth factor, leptin, adiponectin, chemerin, PEDF, AMPK, CRP, TNF-alpha, and interleukin 6.

- Advanced glycation end products are present in uncooked meats and other animal-based foods in the western diet.
- AGEs may lead to Alzheimer disease and metabolic syndrome by suppressing the enzyme deacetylase survival factor sirtuin 1 (SIRT1)

Tests for Dx
- Large waist circumference, triglyceride level of 150 mg/dL, reduced HDL cholesterol (less than 40 mg/dL), increased blood pressure (130/80), and elevated fasting blood sugar.

Prevention
- Physical activity, balanced diet, fiber-rich foods, no smoking.

References