PATHOLOGY of the ENDOCRINE PANCREAS

Reading Assignment
Robbins Basic Pathology (Kumar, Abbas, Aster), 9th edition. Chapter 19, pp. 739-752.

Educational Objectives
- Define diabetes mellitus.
- Explain the significance of:
  a) A random glucose \( \geq 200 \) in the setting of polyuria, polyphagia, and polydipsia
  b) A fasting plasma glucose < 100
  c) A fasting plasma glucose \( \geq 100 \) and \( \leq 125 \)
  d) A fasting plasma glucose \( \geq 126 \)
  e) HgbA1c measurement
- Describe the distinguishing features of diabetes mellitus, type 1 and type 2 in terms of:
  a) Etiology and pathogenesis
  b) Role of inheritance and environmental factors
  c) Age and frequency
  d) Clinical and morphologic manifestations
  e) Insulin and glucose levels
  f) Insulin requirements
  g) Tendency to ketosis
- List the major complications of diabetes.
- Describe diabetic ketoacidosis in terms of etiology, clinical manifestations, key laboratory findings and complications.
- Describe non-ketotic hyperosmolar state in terms of etiology, clinical manifestations, key laboratory findings and complications.
- Describe the 4 major pathways
  a) Formation of Advanced Glycation End Products
  b) Modification of Protein Kinase C Activity
  c) Increase in Intracellular Glucose
  d) Generation of Fructose-6-Phosphate
  by which hyperglycemia leads to the development of microvascular and macrovascular complications of diabetes mellitus.
- Describe the following pancreatic islet cell tumors
a) Insulinomas
b) Gastrinomas

In terms of cell of origin, gross and histologic morphology, and clinical manifestations.

- Describe the key clinical manifestations of the following rare endocrine tumor of the pancreas:
  a) Glucagonoma
  b) VIPoma