

Diabetic Complications

- Type I diabetes is an autoimmune disorder in which the insulin-producing cells in the pancreas are destroyed by host WBCs.
- Type II diabetes is a lifestyle disease in which the cells of the body become resistant to insulin and the pancreas is unable to produce adequate amounts of insulin to keep blood sugar in a healthy range.
 - Some diabetics can halt and/or reverse their disease with exercise and dietary changes/weight loss.
 - Some diabetics eventually lose the ability to produce insulin and they must have insulin injections to control their disease.
- Symptoms may include: high blood sugar; weight loss (due to only using fat for fuel); polyuria; polydipsia; and polyphagia (because of weight loss).

Basic Problems of Ketoacidosis: Patient is dehydrated from polyuria; Patient is acidotic from ketones.

- The diabetic has high blood sugar which causes polyuria and dehydration
 - Dehydration makes hypovolemic shock/organ failure a risk
- Resistant cells are unwilling to take up blood sugar (they have down-regulated their insulin receptors)
 - Adipose cells engage in excessive amounts of lipolysis and the liver transforms these into ketone bodies (a substitute for glucose).
 - The liver makes too many ketone bodies from the unlimited supply of fatty acids.
 - Ketones make the blood acidic (breath may smell fruity from these ketones).
 - ✦ Patient will be breathing rapidly to try to “blow off” excess carbon dioxide (which will make the blood less acidic)

“Cure” for the Crisis? = Insulin injection

- Insulin inhibits lipolysis and ketogenesis and (a big enough shot) will force glucose out of the bloodstream and into the cells.

Chronic Complications from Diabetes:

- High blood glucose damages blood vessel walls
 - Cholesterol “spackles” injured areas; atherosclerosis may develop
 - Heart disease and stroke are more common in diabetics
 - blood supply to eyes and kidneys causes vision loss and kidney damage
 - damages to sensory nerve endings (elevated insulin levels contribute) leading to decreased sensation, especially in the feet.
- High blood sugar
 - Encourages pathogenic growth
 - results in poor wound healing