Diabetic Nephropathy

Newer approaches for treatment
Diabetic Nephropathy

- Renal
- Retinal
- Cardiac
- Neuro
- CNS
- Foot
Diabetic Nephropathy

- Type I diabetes
- Type II diabetes
  - Obesity related
  - Elderly
- Genetic
  - Family history of dialysis
Diabetic Nephropathy

- Blood Supply: arteries, arterioles, and veins
- Glomerulus and its function
- Tubules
- Interstitium
Diabetic Nephropathy
Diabetic Nephropathy

- Renal function
- How diabetes affects the Kidneys
- Progress of diabetic nephropathy
- Role of Dietitians
- Standard treatment
- New approaches
tuft of capillaries making up glomerulus
branch from renal artery carrying blood under pressure
filtered fluid flows down kidney tubule to become urine
water and other small molecules filter into capsule from blood
filtered fluid flows down kidney tubule to become urine
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Renal Filtration (1)

- Blood flow
- Afferent arteriole
- Glomerulus
- Glomerular capsule
- Parietal layer of glomerular capsule
- Proximal convoluted tubule
- Efferent arteriole
- Blood flow
- Visceral layer of glomerular capsule
Diabetic Nephropathy

• Diabetes can affect kidney in several ways
• Protein loss cause, onset, types, effect
• Glomerulus sclerosis
• Fibrosis
Diabetic Nephropathy

- Hypertension caused by DN effect on DN
- Malnutrition due to proteinuria
- Brittle diabetes
- CHF and edema
- SHPT
- Anemia
- Hyperlipidemia
Diabetic nephropathy

- Dietary role
- Weight management
- Sugar control
  - Diet
  - Oral hypoglycemic
  - Insulin
- Lipids
- With CKD: protein intake, salt, phosphorus
Diabetic Nephropathy

- Glycemic control HGA1c <6
- Hypertension control BP <140/80
  - Ace inhibitors, ARB, BB
- Lipid control LDL < 100
- ASA
- Nephrotoxic drugs and contrast material
Diabetic Nephropathy

• Bardoxolone
  Antinflammatory to renal parenchyma
decrease proteinuria
high side effects and CHF and death
Diabetic Nephropathy

• Atrasentan
  
  Pts type 2 DM, and nephropathy decrease proteinuria and improves LDL
  
  211 patients, type 2 DM, urine prt 3500
  
  eGFR 30 to 75
  
  Urine prt decreased by 44% in 12 week.
  
  Now a large and longer phase 3 study
Diabetic Nephropathy

- Acthar
  synthetic ACTH found to decrease urine protein excretion in IMN. In animal studies has anti-inflammatory effect on the kidney. Small trial on pts had good results decreased protein and stabilized eGFR.
Diabetic Nephropathy

• Invokana
  Unique drug used for type 2 DM with diet and other hypoglycemic agents.
  It works by decreasing the reabsorption of glucose from the tubules which lowers serum glucose.
  It can cause dehydration and drop in BP due to increased urine output