Chronic kidney Disease

Definition:

- Gradual loss of kidney function
- Advanced disease can cause dangerous levels of fluid, electrolytes & wastes build up in the body
- Also called chronic kidney failure
- Black, Native American & Asian American are more at risk

Risk factors/causes:

- Diabetes
- Hypertension & cardiovascular diseases
- Glomerulonephritis
- Polycystic kidney disease (inherited)
- Smoking & drug abuse
- Obesity
- Age
- Family Hx of kidney disease

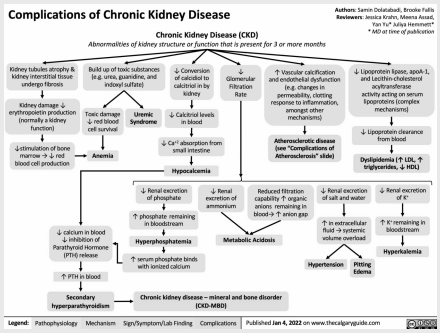
Pathophysiology & mechanism: Causes → ↓ number of nephrons → activation of vasoactive mediators, cytokines, RAAS, growth factors → structural & functional changes of surviving nephrons → hyperfiltration → ↑ intraglomerular capillary pressure → accelerated sclerosis of remaining nephrons → ↓ number of nephrons

Signs & symptoms:

- Nausea/vomiting
- Loss of appetite
- Frequent/difficulty urinating
- Foamy urine
- Ammonia-smelling breath
- Fatigue & weakness
- Ankle & feet swelling
- Anaemia
- Hypocalcaemia (↓ calcium)
- Hyperphosphatemia (↑ phosphate)
- Metabolic acidosis
- Hyperkalaemia (↑ potassium)

Treatment: Medication or surgery (kidney transplant)

Chronic Kidney Disease



Glomerulonephritis

Definition: Inflammation & damage of the tiny filters (glomeruli) in the kidneys (autoimmune origin)

Risk factors/causes:

- Infections
- Autoimmune
- Vasculitis
- Sclerotic conditions
- Inherited
- Cancers

Signs & symptoms:

- Nausea/vomiting
- Fatigue
- Less urination
- Pink or cola-coloured urine
- Foamy urine
- Hypertension
- Oedema (fluid retention)

Complications:

- Accumulation of wastes or toxins in the bloodstream
- Poor regulation of essential minerals & nutrients
- Loss of red blood cells
- Loss of blood proteins

Treatment: Therapies for associated kidney failure

Sponsored by **CrosswordCheats.com**
Learn to solve cryptic crosswords!
http://crosswordcheats.com

Nephritic Syndrome

Definition: Inflammation of the glomeruli (glomerulonephritis) & renal dysfunction

Risk factors/causes:

- Immunological (IgA nephropathy, tend to occur post-infection)
- Within the course of autoimmune disease (*Lupus nephritis*)
- Kidney disease (causes by many different bacteria, viruses, fungi, parasites, systemic, etc.)

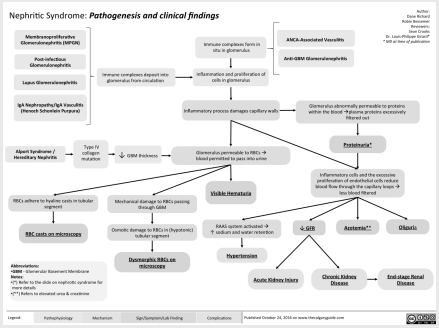
Pathophysiology & mechanism: Deposition of immune complexes (antibody + antigen) or antibodies triggers inflammation with leukocyte infiltration → injurs cells & degrades the glomerular basement membrane (GBM) → leakage of erythrocytes (RBC) + some proteinuria → S/Sx

Signs & symptoms:

- Blurred vision
- Hypertension
- Oliguria (low urine output)
- Haematuria (blood in urine)
- Proteinuria
- Azotemia (↑levels of nitrogen-containing substance)

Treatment: Medication & surgery (kidney transplant)

Nephritic Syndrome



Diabetic Nephropathy

Definition: Glomerular loss (glomeruli [filtration] malfunction) & secondary disease to diabetes

Risk factors/causes:

- Hyperglycaemia (↑ blood sugar)
- Hypertension
- Smoking
- Obesity
- Family Hx of diabetes & kidney disease
- ↑ blood cholesterol

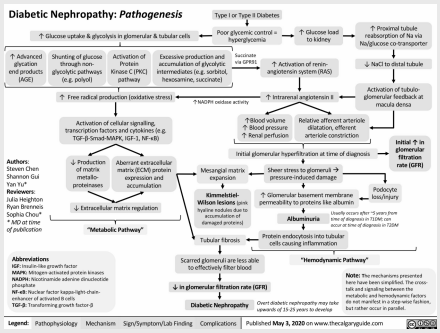
Pathophysiology & mechanism: ↑glucose levels → ↑blood volume, pressure & renal perfusion → damages the blood vessels (form glomeruli) → leaky vessels → extravasation of blood proteins (spilt into the capsule)

Signs & symptoms:

- Nausea
- Loss of appetite
- Fatigue/insomnia
- Swollen ankles, feet & hands
- Dry/itchy skin
- Difficulty concentrating

Treatment: Medication or surgery (kidney transplant)

Diabetic Nephropathy



Sponsored by **CrosswordCheats.com**
Learn to solve cryptic crosswords!
http://crosswordcheats.com

Nephrotic Syndrome

Definition: [Sate of kidney failure] Kidney disorder that causes the body to pass too much protein in the urine (heavy proteinuria 3.0g/24 hours)

Risk factors/causes:

- Metabolic
- Immunological
- Idiopathic/primary
- Neoplastic
- Medication/drug use
- Infection
- Allergic
- Genetic syndromes

Pathophysiology & mechanism: Podocyte injury → podocyte damage, effacement (thinning), & detachment from the basement membrane → proteins leak through the filtration membrane → enter urine → S/Sx

Signs & symptoms:

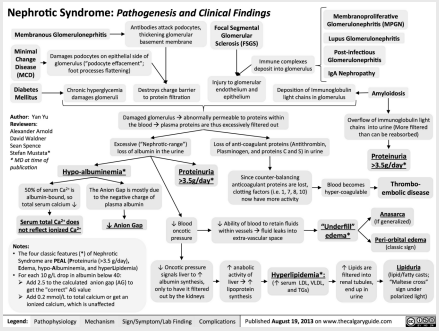
- Oedema (starts in the face, spreads peripheral)
- Vomiting
- Pale skin/fissures
- Foamy urine (excess protein)
- Fatigue
- Loss of appetite
- Weight gain (fluid retention)

Complications:

- Tachycardia (↑BPM)
- Hyperlipidemia (↑lipid levels)
- Proteinuria (↑protein in urine)
- Blood clots (blood proteins help prevent them)

Treatment: Medication & surgery (kidney transplant)

Nephrotic Syndrome



Hypertensive Nephropathy

Definition: Progressive kidney damage due to long-term, poorly controlled high blood pressure

Risk factors/causes: Hypertension & lesion = *arteriolar nephrosclerosis*

Pathophysiology & mechanism: Hypertension → thickening of Bowman's capsule & nephron capillaries due to cell proliferation (accumulation) & collagen deposition → ↑glomerular pressure → ↓renal blood flow → alteration in inflammatory profile of different cells → ↓permeability & filtration → glomerular sclerosis → hypertensive nephropathy

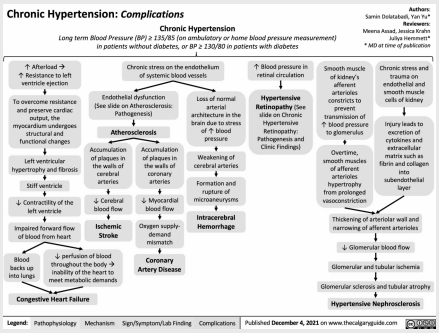
Signs & symptoms:

- Nausea/vomiting
- Loss of appetite
- Itching
- Confusion

Complications of persistent ↑ BP:

- Brain (strokes, hypertensive encephalopathy)
- Blood (↑ sugar levels)
- Eye retina (Hypertensive retinopathy)
- Heart (MI, hypertensive cardiomyopathy)
- Kidneys (hypertensive nephropathy)

Hypertensive Nephropathy



Sponsored by **CrosswordCheats.com**
Learn to solve cryptic crosswords!
http://crosswordcheats.com