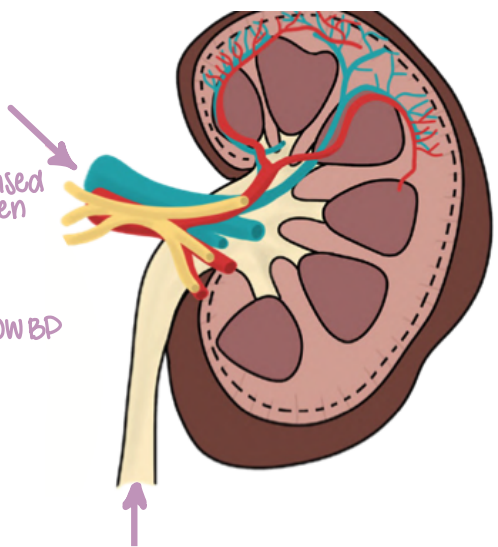


acute renal injury

Sudden renal damage
causes a build up of waste, fluid, & electrolyte imbalance
can be reversible!



PRERENAL FAILURE

- damage before the kidneys
- decreased blood flow to glomeruli
 - cardiac damage
 - ↓ cardiac output
 - ex: MI → low perfusion
 - vasodilation
 - hemorrhage (hypovolemia): low BP
 - GI loss (Vid)
 - burns
 - obstruction, vessel occlusion
 - ↳ blocks oxygen

INTRARENAL FAILURE

- damage in kidneys } more serious bc
- prolonged ischemia } intense
- myoglobinuria
- hemoglobinuria
- rhabdomyolysis
- nephrotoxic agents
- infection (glomerulonephritis)* - lupus
- hypertension
- DM
- direct trauma to kidney
- CT contrast: kills kidneys
- antibiotics: -mycins
- ↑ BUN
- ↑ creatinine
- ↓ specific gravity urine
- ↑ urine Na⁺

POSTRENAL FAILURE

- damage after kidneys
- obstruction/blockage in urinary tract that cause urine to back up
 - * ◦ renal calculi (stones)
 - * ◦ blood clots
 - * ◦ BPH
 - * ◦ tumors*
 - * ◦ neuro damage (stroke)

AKI w/ negative nitrogen balance: expected weight loss of 0.5 kg/day

acute renal failure

◦ non-urolgic conditions

INITIATION	* Oliguria	diuretic	recovery
triggering event ◦ short (1-3 days) ↑ BUN & creatinine w/ normal ↓ urine output correct & identify underlying cause to prevent long-term damage to nephrons	less urinary output < 400 ml/day glomerulus decreases ability to filter blood (↓ GFR) ↳ hypervolemia: blood volume is ↑ than normal ◦ urine osmolality ↓ } as waste products are retained * ◦ serum osmolality ↑ } ◦ urine specific gravity: 1.010 (1.010-1.025) ◦ ↑ BUN & creatinine treatment: ◦ low protein diet * ◦ limit fluid intake ↳ strict I/O & daily weights ◦ monitor EKG & for hyperkalemia (>5.0) ◦ dialysis may be needed until kidney function returns	recovering nephrons ◦ cause of AKI is corrected ◦ gradual ↑ in output exceeds 400 ml/day ◦ kidneys excrete BUN, creatinine, K ⁺ , phosphorous ◦ retain Ca ⁺ & bicarbs ◦ despite production of large quantities of urine, few waste products are excreted & wastes accumulate monitor: ◦ dehydration* ◦ hypokalemia	↑ in kidney function 1-12 months ◦ electrolytes, BUN, & creatinine return to normal ◦ some may never recover & may develop chronic kidney disease

Chronic Renal Failure (Chronic Kidney Disease)

Intrarenal cond or systemic diseases

- ALL labs ↑
↳ except Ca^{2+} : ↓

gradual loss of kidney function in stages: **uremia!**

- GFR > 90: normal
- 1: > 90
- 2: 60-89
- 3: 30-59
- 4: 15-29
- 5: < 15 ← **end stage renal disease**

treatment:

- dialysis
- kidney transplant

nursing considerations

- * **priority, immediate report**
 - monitor HTN crisis!
 - ↳ headache
 - ↳ n/v
 - ↳ change in mental status

◦ excess wastes & electrolytes in blood

- ↳ H^+ ions → **met acidosis**
- ↳ urea → **pruritis**
- ↳ ↑ Na^+ (> 145): edema
- ↳ ↑ P (↓ Ca^{2+}) osteopor

priority since pump heart!

- ↳ ↑ K^+ (> 5.0) **pumps heart**
 - ↑ T waves
 - weak, lethargic

causes

- uncontrolled DM (hyperglycemia)
- uncontrolled HTN
- polycystic kidney disease

creatinine clearance test:

- > 1.3: bad kidney
- **24 hour test**
 - ↳ discard first urine specimen when test begins!

S/S:

- can't get fluid out (oliguria) low urine output

complications

- HTN
 - ↳ lead to stroke, heart attack, further kidney damage

diet:

- * ◦ restrict fluid, Na^+ , K^+
- restrict phosphorus & protein!
 - ↳ no dairy
 - ↳ less animal products
- no Na^+
 - ↳ processed meats
- no K^+
 - ↳ apples are best choice
 - ↳ no leafy veggies!
- ↑ Ca^{2+} ?

Tx:

- ① IV Ca^{2+} gluconate = dysrhythmias
- ② IV dextrose + insulin
- ③ Kayexalate
- ④ dialysis