Med Surg Renal and Urinary System Cheat Sheet

by jacirubin via cheatography.com/178239/cs/37171/

Kidney Hormones

Renin	Raises blood pressure as result of angiotensin (local vasoconstriction) and aldosterone
Prostaglandins	Regulate intrarenal blood flow by vasodilation or vasoconstriction
Bradvkinins	Increase blood flow (vasodilation) and vascular permeability
Erythropoietin	Stimulates bone marrow to make red blood cells
Vit D	Promotes absorption of calcium in the GI tract

Pyelonephritis

Top renal disease	Inflammation of renal parenchyma and upper urinary tract
S/S	Fever, chills, flank pain
Acute	Bacteria
Chronic	immune disorder
Urosepsis	bacteria in urine
s/s	lower BP, fever, high HR, lower IOC
lead to	septic shock, multisystem failure

Renal Calculi

Causes	Male, high sodium, calcium, protien, genetics, dehydration, immobility, gout, UTI
S/S	depends on size and location - Upper= flank pain Lower = genital/abdominal pain
Calcium stone	60%-80%
Uric Acid Stone	low PH, 10%
Cystine	genetic, 3%
Testing	UA, serum calcium, uric acid, XR, cystoscope

Renal Calculi (cont)

Surgery	Lithotripsy - Shock wave stones < 2cm -Percutaneous Nephrolithotomy - stones > 2 cm under GA
DIet	2 1/2 - 3L /d, low sodium, low calcium
IVP	Intravenous pyelogram to look at kidneys and ureters

AKA Kidney Stones

Urine formation

glomerular filtration	hydrostatic pressure, filters by size
GFR	125mL/m / 180L/d - influenced by BP and volume max 70mmhG
2nd phase	Tubular moves water back to blood, ADH/ALdosterine increases water reabsorption up to 220mg/d
3rd phase tubular secretion	solutes from blood to filter - potassium, iron, keeps homeostasis

UTI

risks	Female, increased age, catheters
S/S	Dysuria, frequency, urgency, pain, hematuria, suprapubic pain
Causes	E. coli
Complications	drug resistance, urethritis, pyelonephritis, renal assess
Urethritis	inflammation of urethra
Cognitive issues	falls, dizzy, lower appetite
teaching points	2-3L/D, Void after intercourse,

UTI (cont)

Houdini	Hematuria, obstruction, edema, surgery, end of life care, immobile
get urine culture	keep on ice
TX	Antibiotics

Hypo/Hyper

Hyponatremia S/S	Brain damage, seizures coma
Hyponatremia TX	salt, fluid restriction, IV fluids
Hypernatremia S/S	coma, seizures, delusions, thirst, tachy
Hypernatremis Tx	Increase fluids, decrease sodium,
Hypokalemia S/s	short QT, bradycardia
Hypokalemia tX	ALBUTEROL, DOPAMINE, DIURETICS, ST
Hypomagnesium S/S	HTN, hyperactivity, tachycardia, chvostek
Hypomagnesium tx	fall precautions, iv ma sulfate

Kidney Structure

Afferent arteriole	Delivers arterial blood from the branches of the renal artery into the glomerulus	Autoregulation of renal blood flow via vasoconstriction or vasodilation Renin-producing granular cells

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Kidney Structure (cont)

Efferent arteriole	Delivers arterial blood from the glomerulus into the peritubular capillaries or the vasa recta	Autoregulation of renal blood flow via vasoconstriction vasodilation Renin-producing granular cells
Glomerulus	Capillary loops with thin, semipermeable membrane	Site of glomerular filtration Glomerular filtration occurs when hydrostatic pressure (blood pressure) is greater than opposing forces (tubular filtrate and oncotic pressure)
Bowman's capsule (BC)	Thin membranous sac surrounding ⅞ of the glomerulus	Collects glomerular filtrate (GF) and funnels it into the tubule
Proximal convoluted tubule (PCT)	Evolves from and is continuous with Bowman's capsule Specialized cellular lining facilitates tubular reabsorption	Site for reabsorption of sodium, chloride, water, glucose, amino acids, potassium, calcium, bicarbonate, phosphate and urea

Kidney Structure (cont)

Loop of Henle	Continues from PTC Juxtamedullary nephrons dip deep into the medulla Permeable to water, urea, and sodium chloride	Regulation of water balance
Collecting ducts	Collect formed urine from several tubules and deliver it into the renal pelvis	heceptor sites for antidiuretic hormone regulation of water balance

Bladder Cancer

Risk Factors	begins in urothelial cells that line the bladder, men>women, chronic inflammation, carcinogens
Manifestations	hematuria, frequent/painful urination, back pain
TX	Chemo, radiation, surgery
Surgeries	cystectomy, urinary diversion
neobladder	no external pouch
continent diversion	stoma hiden in. umbilicus
complications	bleeding, clots, infection

Acute renal failure

common in hospitalized patients

oliguria, prenal	HTN, lower CU, hypovolemia

ABG interpretation

Normal	PH: 7.35 PaCO2: 35-45 HCO3: 22-26
Metabolic Acidosis	Low pH LOW HCO3
Metabolic Alkalosis	High pH High HCO3
Respiratory Acidosis	Low Ph High. PaCO2
Respiratory Alkalosis	High PH Low PAco2

Causes of Nephrotic Syndrome

Primary Glomerular Disease	Membranous proliferative glomerulonephritis, Primary nephrotic syndrome, Focal glomerulonephritis, Inherited nephrotic disease
Multisystem Disease	Lupus
Allergens	Bee Sting
Infection	Strep
Neoplasms	Leukemia
Drugs	Penecillin, NSAID

Acute Glomerulonephritis

inflammation	3rd cause of kidney failure
cause	great b strep, autoimmune - lupus, good pastures
S/S	HTN, decrease output, decrease GFR, edema, proteinuria, hematuria, dysuria
medications	ABX, diuretics, plasmapheresis, protien restricted diet

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Benign Prostatic Hyperplasia

noncancerous enlargement of prostate	
S/S	Difficulty urinating, bladder outlet obstruction (BOO)
DX	rectal exam, prostate specific antigen
PSA	elevates if prostate cancer
medica-tions	Finasteride, dutasteride, tamsulosin
surgeries	TUIP, go home with foley
FInast-eride	women don't touch, reduces size
Tamusolin	flowback
TUIP	incision into prostate to relieve compression and make urine flow easier
CBI	continuous bladder irrigation prevents blood clots
TURP syndrome	due to prostate irrigation - lower BP, Sodium and Hbg

Prostate Cancer

slow growing malignant tumor	
risk	African American, 50 years+
charac-teristics	slow growing, asymptomatic, can meastitize to lymph nodes, bone, rectum, bladder
DX	curable early detection, PSA levels, rectal exam
TX	external radiation, prostatec-tomy, ABX
teaching points	symptoms go away 34-48hrs, don't quit ABX

Urine Retention

<400ml	Oliguric
TX	kiegels, scheduled bathroom, Bethanechol
Cause	anticholergenics

Medications

Cymbalta	depression, neuropathic pain
oxybutynin	decrease muscle spasms in bladder
Tolter-doine	overactive bladder
darife-nacine	treats symptoms of overactive bladder
Trospium	overactive bladder
Salifencin	neurogenic overactivity

PKA

common genetic disorder	cysts
autosomal dominate	appears age 30-40
s/s	HTN, obstruction, hematuria, pain
DX	UA, blood.bacteria, radiog-raphic
TX	dialysis
labs	anemia, increases BUN, Creatinine, NA, K, HR, lower CA, fever

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