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Postgraduate

UROLOGY

Entrance Review (PGIMER)

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Yogesh Rameshrao Barapatre

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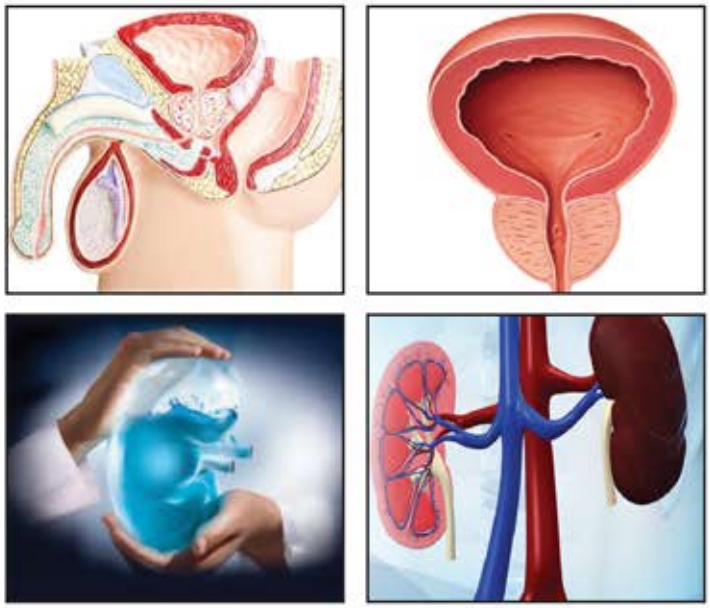

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UROLOGY DECEMBER 2013

1. **Drugs which can be given in acute renal azotemia:**
   A. Nitrofurointoin
   B. Linezolide
   C. Doxycycline
   D. Rifampicin
   E. Fluconazole

   Answer: B, C, D, E.
   - Nitrofurantoin is bacteriocidal at the concentrations >100 microgm/mL achieved in urine, but It is bacteriostatic against most susceptible organisms at concentrations < 32 micrograms.
   - Nitrofurantoin and the quinolone antibiotics are mutually antagonistic in vitro.
   - Nitrofurantoin and its metabolites are excreted mainly by the kidneys. In renal impairment, the concentration achieved in urine may be subtherapeutic. Nitrofurantoin should not be used in patients with a creatinine clearance of 60 mL/min or less.
   - Unlike some other members of the tetracycline group, doxycycline may be used in pts with renal impairment

2. **65 yr male HTN with DM, DRE reveled prostate grade 1, flow rate- 13ml/s, voided volume- 250ml, PVR-50ml, PSA-1.2, suffered from afebrile cystitis 6 mths back. Now presented with moderate bothersome symptoms, AUA=13/35, next best step of management is:**
   A. Repeat PSA after 6 mth
   B. TRUS (12 core) biopsy
   C. Extended release Alfuzocin 10 mg
   D. Tamsulocin 0.4mg + Dutasteride
   E. TURP

   Answer: A, E.

3. **Patient of Azoospermia with primary infertility, semen analysis revealed volume 3ml, normal FSH & Testosterone, Vas and ejaculatory duct normal, seminal vesicle enlarged (dilated), on TRUS USG prostate normal, post ejaculatory urine- no sperm.**
   A. Seminal vesicle aspiration
   B. Renal USG
   C. ED cannulation
   D. Testicular biopsy
   E. Vasography

   Answer: D.

   Reference: *Campbell walsh urology, 10th ed /Reproductive and Sexual Function/page 634.*

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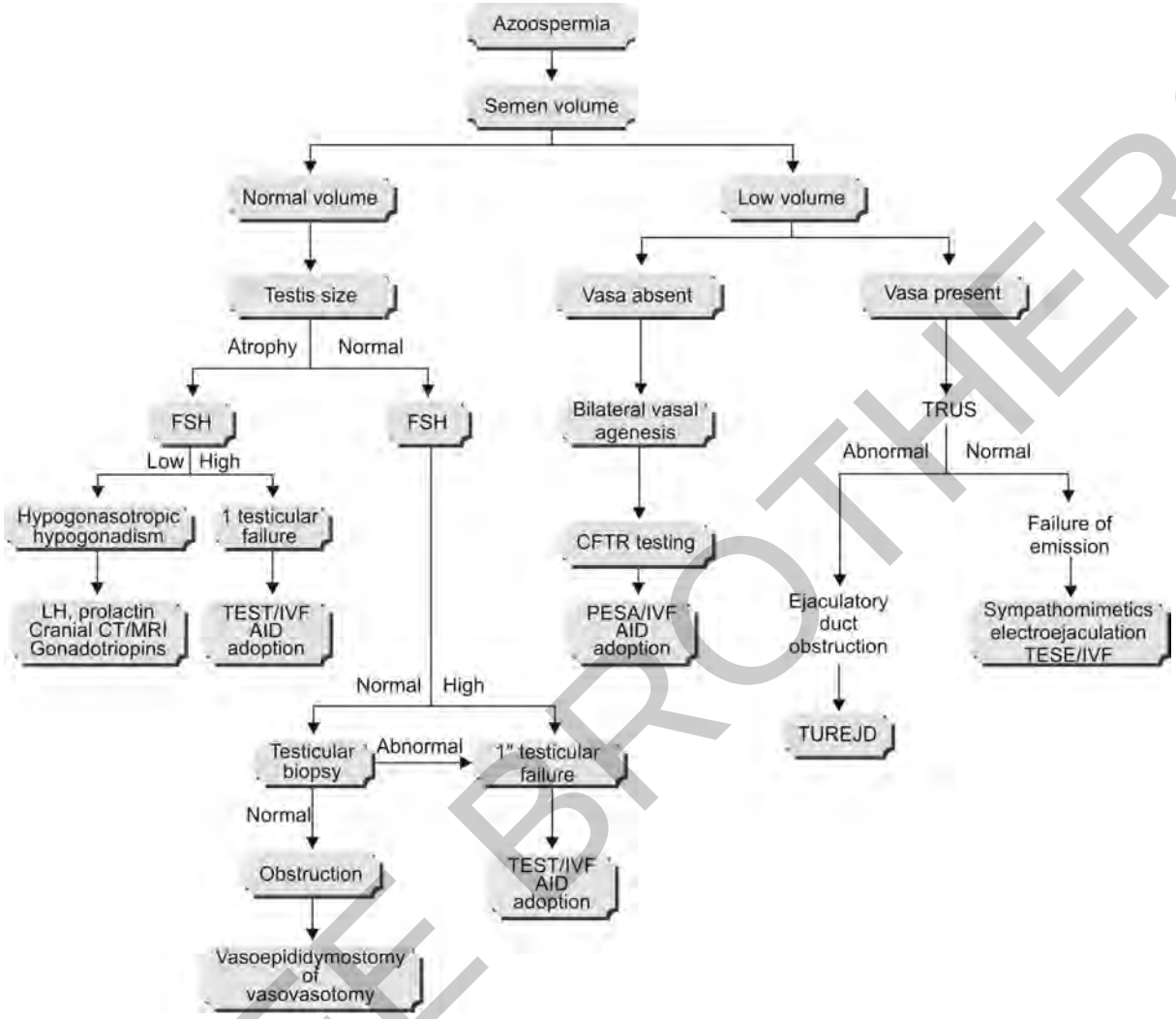

4. Pheochromocytoma in pregnant women true are:

A. Incidence 1 in 5,00,000
B. Normal vaginal delivery increase risk
C. Hypertension in late pregnancy
D. Fetal mortality 15%
E. Maternal mortality 5%

Answer: B, C.

Reference: Vikram A Londhey, Vrinda K Kulkarni; Pheochromocytoma Presenting as Hypertension in Pregnancy; JAPI; August 2010:vol. 58

- Pheochromocytoma in pregnancy is rare (prevalence 1 in 54,000 full-term pregnancies),
- Pregnancy can elicit clinical manifestations of otherwise unrecognized pheochromocytoma. Pregnancy complicated by pheochromocytoma is a life-threatening situation for both mother and foetus.
- Pregnancy and labour increase the risk of hypertensive crisis as it may occur with the sudden release of catecholamine accompanying uterine contractility and straining.
- Pheochromocytoma should be searched for in the differential diagnosis of hypertension during pregnancy, especially in the young.
- Diagnosis can be made by elevated urinary catecholamines and by MRI scan as well as by ultrasonography.
- Surgical removal of the tumour is the definitive treatment.

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- The maternal mortality rate of undiagnosed pheochromocytoma is about 50%; this rate falls to 11% if diagnosis is made antepartum.
- The rate of foetal loss is similar even if the diagnosis is made during pregnancy.

5. Crossed fused ectopia true is:

A. 1:2,00,000 incidence
B. Four types of ectopia
C. 10% cephalad fused ectopia
D. Pelvis anterior
E. PUJ reflux in orthotopic kidney

Answer: B, D.

Reference: *Campbell walsh urology, 10th ed / Pediatric Urology/ page 3140*

- When a kidney is located on the side opposite from that in which its ureter inserts into the bladder, the condition is known as crossed ectopia.
- 90% of crossed ectopic kidneys are fused to their ipsilateral mate.
- More commonly in males with a ratio of 2 : 1, and left-to-right ectopia is seen three times more frequently than right-to-left ectopia crossed ectopia with fusion and estimated its occurrence at 1 in 1000 live births.
- The unilaterally fused kidney with inferior ectopia is the most common variety, whereas fusion with superior ectopia is the least common.
- classification include crossed ectopia with fusion, crossed ectopia without fusion, solitary crossed ectopia, and bilaterally crossed ectopia
- There are Six forms of crossed renal ectopia with fusion.(1) unilateral fused kidney with inferior ectopia; (2) sigmoid, or S-shaped; (3) lump or cake; (4) L-shaped, or tandem; (5) disc, shield, or doughnut; and (6) unilateral fused kidneys with superior ectopia
- The renal pelvis is usually anterior (instead of medial) to the parenchyma, due to incomplete rotation. As a result, 56% of ectopic kidneys have a hydronephrosis.

6. Hypocitraturia true is:

A. Risk factor for stone
B. Found in decrease acid load
C. Associated with metabolic acidosis
D. Associated with metabolic alkalosis
E. May be heredietary

Answer: A, C.

Reference: *Campbell walsh urology, 10th ed / Urinary Lithiasis and Endourology/page 1264.*

- Hypocitraturia is an correctable abnormality associated with nephrolithiasis that present as an isolated abnormality in up to 10% of calcium stone formers and is associated with other abnormalities in 20% to 60%.
- Citrate is an important inhibitor which reduce calcium stone formation by
  - Citrate reduces urinary saturation of calcium salts by complexing with calcium
  - Citrate directly prevents spontaneous nucleation of calcium oxalate
  - citrate inhibits agglomeration & sedimentation of calcium oxalate crystals and growth of calcium oxalate & calcium phosphate crystals
  - normal urinary citrate levels can enhance the inhibitory effect of Tamm-Horsfall glycoprotein
- Hypocitraturia is defined as a urinary citrate level less than 320 mg/day or less than 0.6 mmol (men) or 1.03 mol (women) daily
- Acid-base state is the primary determinant of urinary citrate excretion.
- Metabolic acidosis reduces urinary citrate levels secondary to enhanced renal tubular reabsorption and decreased synthesis of citrate in peritubular cells.
- Low urinary citrate is associated with acidosis.
  - Distal RTA (high urine pH (>6.8), high serum chloride, and low serum bicarbonate and potassium)
  - Chronic diarrheal states cause intestinal alkali loss in the stool with subsequent systemic acidosis and hypocitraturia

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- Excessive animal protein can provide an acid load, reducing citrate levels
- high-protein, low-carbohydrate diet lead to a significant reduction in urinary citrate and pH
- Thiazides Diuretics induce hypokalemia and intracellular acidosis.
- Enalapril can cause hypocitraturia independently of systemic acidosis or hypokalemia, due to intracellular acidosis
- strenuous exercise may induce lactic acidosis

• Citrate levels in the urine increase in alkalotic states, as well as with elevated levels of PTH, estrogen, growth hormone, and vitamin D.

7. Oxalate rich food are:

A. Nuts and seeds
B. Spinach
C. Sweet potato
D. Lemon
E. Bread

Answer: A, B, D, E.

• **Fruits:**
  - blackberries, blueberries, raspberries, strawberries, currants, kiwifruit, concord (purple) grapes, figs, tangerines, and plums, Lemon and lime pee

• **Vegetables:**
  - spinach, Swiss chard, beet greens, collards, okra, parsley, leeks and quinoa
  - celery, green beans, rutabagas, summer squash, Eggplant

• **Nuts and seeds:**
  - almonds, cashews, and peanuts

• **Legumes:**
  - soybeans, tofu and other soy products

• **Grains:**
  - wheat bran, wheat germ, quinoa (a vegetable often used like a grain)

• **Other:**
  - cocoa, chocolate, and black tea

8. pH of urine true is:

A. >5.8 associated with uric acid stone
B. >6.2 associated with RTA
C. >6.2 associated with calcium phosphate stone
D. >6.2 associated with calcium oxalate stone
E. >8 associated with proteus infection

Answer: E

Reference: *Campbell walsh urology, 10th ed /Clinical Decision Making/Page 86.*

• Urinary pH may vary from 4.5 to 8; the average pH varies between 5.5 and 6.5. A urinary pH between 4.5 and 5.5 is considered acidic, whereas a pH between 6.5 and 8 is considered alkaline.
• Alkaline urine with a pH greater than 7.5 suggests infection with a urea-splitting organism, MC is Proteus.
• Urease-producing bacte bacteria convert ammonia to ammonium ions, markedly elevating the urinary pH and causing precipitation of calcium magnesium ammonium phosphate crystals. The massive amount of crystallization may result in staghorn calculi.
• Urinary pH is usually acidic in patients with uric acid and cystine lithiasis.

9. Pretransplant nephrectomy indications:

A. Grade 4 & 5 HDN
B. Glomerulonephritis

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C. PCKD
D. DM
E. Recurrent pyelonephritis

Answer: B, C, E.

Reference: *Danovitch, Gabriel M., Handbook of Kidney Transplantation, 4th Edition, Evaluation and Preparation of Renal Transplant Candidates, page 181.*

Indications for pretransplantation native nephrectomy:

- Chronic renal parenchymal infection
- Infected stones
- Heavy proteinuria
- Intractable hypertension
- **Polycystic kidney disease:** Only when the kidneys are massive, recurrently infected, or bleeding
- Acquired renal cystic disease Infected reflux- When there is suspicion of adenocarcinoma.
- Infected Reflux (Uninfected reflux does not require nephrectomy)

10. CRPC drug used are:

A. Abiraterone
B. Docetaxel
C. Sepulecet T
D. Cabezitaxel
E. Triptorelin

Answer: A, B, C, D.

Reference: *Campbell walsh urology, 10th ed/ prostate/Treatment of Castration-*

- Resistant Prostate Cancer/page 1963-67.
- Sipuleucel-T (Provenge) is a vaccine derived from CD54+ dendritic cells, the major antigen-presenting cells, which show an overall survival advantage, with median survival being 18.9 months in the placebo group and 23.2 months in the sipuleucel-T group.
- The Abiraterone acetate is an oral selective inhibitor of the microsomal enzyme cytochrome P17 which is a key regulator of adrenal androgen synthesis. Inhibition of 17α-hydrolase, resulting in excess synthesis of aldosterone and its precursors which leads to suppression of cortisol with a compensatory rise in ACTH. Abiraterone also inhibits C17, 20-lyase, resulting in suppression of testosterone to levels of less than 1 ng/mL (significantly < 50 ng/ml, castrate levels)
- Docetaxel, a member of the taxane family. This agent acts by inducing apoptosis in cancer cells through TP53-independent mechanisms due to inhibition of microtubule depolymerization and blockade of antiapoptotic signaling.
- Cabazitaxel has recently emerged as a treatment option for patients with metastatic CRPC who have experienced progressive disease during or after docetaxel treatment.
- Triptorelin is gonadotropin-releasing hormone agonist (GnRH agonist)

11. 80 years male with DM and HTN, DRE- suspicious nodeule in rt lobe, PSA-12, biopsy – adenocarcinoma, gleasons score 3+3, next step in management:

A. Watch full waiting
B. Retropubic Prostatectomy
C. Radiotherapy (radical)
D. B/L orchidectomy
E. LHRH agonist

Answer: A, D, E.

12. Floppy iris syndrome seen with:

A. Tamsulocin
B. Metoprolol
C. Atenolol
D. Doxazocin
E. Propanolol

Answer: A, D.

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Reference: *Campbell walsh urology, 10th ed/prostate/ page 2632.*

- Allan J. Flach, intraoperative floppy iris syndrome: pathophysiology, prevention and treatment; Trans Am Ophthalmol Soc. 2009 December; 107: 234–239.
- Intraoperative floppy iris syndrome (IFIS) noticed during approximately 2% of cataract surgery cases. The clinical manifestations of IFIS are poor preoperative pupil dilation, iris billowing and prolapse,and progressive intraoperative miosis.
- α1-adrenergic antagonist Tamsulosin is commonly associated with IFIS. α1A is the predominant receptor subtype in the iris dilator muscle. The persistence of IFIS long after the discontinuation of tamsulosin suggests a semipermanent muscular atrophy and loss of tone. It is not clear how long one must take tamsulosin before experiencing these chronic muscular changes. IFIS does not occur until patients have been on tamsulosin therapy for 4 to 6 months. IFIS can also occur up to several years after discontinuation of tamsulosin. IFIS has also been reported but less commonly with non–subtype-specific α1-adrenergic antagonists, such as terazosin, doxazosin, and alfuzosin.
- Discontinuing any α-blocker for 1 or 2 weeks prior to surgery may help but does not prevent IFIS. In fact, discontinuation of tamsulosin before cataract surgery did not decrease the severity of IFIS.

13. Distal bulbar urethra epithelium:

A. Transitional
B. Stratified squamous
C. Keratinized stratified squamous
D. Pseudostratified columnar
E. Columnar

Answer: D

Reference: *Campbell-Walsh Urology, 9th ed. /Surgery of Penile and Urethral Carcinoma / Male Urethral Cancer/ page 1011.*

Stratified/Pseudo stratified columnar epithelium present at membranous urethra, bulbar urethra and penile urethra. (Fig 32-28)

- 80% of male urethral cancers are squamous cell carcinoma (meatus to membraneous urethra)
- 15% are transitional cell carcinoma
- 5% are adenocarcinoma, melanoma, lymphoma, paraganglioma, sarcoma, or undifferentiated tumor.

14. Penile anatomy true is:

A. Bucks fascia derived rectus sheath form suspensary ligament of penis
B. Common penile artery is domminent supply to erectile body
C. Bucks fascia surround dorsaly–cavernosa, ventraly-glans
D. Penile shaft skin rich in appendages
E. Highly variable penile artery branching, course, and anastomosis

Answer: A, B, C, E.

Reference: *Campbell-Walsh Urology, 10th ed./Anatomy/ Perineum/penis/page 65.*

- Buck's fascia (Gallaudet's fascia) is a layer of deep fascia covering the three erectile bodies of the penis. It is continuous with the external spermatic fascia in the scrotum and the suspensory ligament of the penis.
- Buck fascia surrounds both cavernosal bodies dorsally and splits to surround the spongiosum ventrally
- The skin of the penile shaft is highly elastic and without appendages.
- The common penile artery continues in Alcock canal, above the perineal membrane, and terminates in three branches to supply the erectile bodies.
- penile arteries are highly variable in their branching, courses, and anastomoses

15. True about urothelial carcinoma:

A. T1- Re TURBT may be done
B. Single dose Mitomycin decreases recurrence
C. Fluorescence cystoscopy not better than simple cystoscopy
D. Pyrazinamide need to be added with INH and rifampicin with BCG toxicity
E. Interferon not beneficial after BCG failure.

Answer: A, B, E.

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Reference: *Campbell-Walsh Urology, 10th ed/ Urothelial Tumors of the Bladder / Non–Muscle-Invasive Bladder Cancer (Ta, T1, and CIS)/page 2342,2345.*

- Photoactive porphyrins accumulate preferentially in neoplastic tissue. Under blue light they emit red fluorescence, which can help in the diagnosis of indiscernible malignantlesions. Commonly used agents are Hematoporphyrin, 5-aminolevulinic acid (5-ALA), hexaminolevulinate (HAL),
- BCG is almost uniformly resistant to pyrazinamide, so this drug has no role.
- Interferons are glycoproteins produced in response to antigenic stimuli. Interferon as a solitary agent is more expensive and less effective than BCG or intravesical chemotherapy in eradicating residual disease, preventing recurrence of papillary disease, and treating CIS (20% to 43% complete response).
- patients who failed BCG alone within 12 months had a poor response to combination therapy of BCG/interferon, the majority of patients who failed with recurrence did so within 4 months of initial treatment

16. which scan has best tissue to background ratio:

A. Tc DTPA
B. Tc DMSA
C. Glucoheptonate
D. Iodo heptonate
E. Tc MAG3

Answer: D, E.

Reference: *Campbell-Walsh Urology, 10th ed./ Clinical Decision Making/ page 126.*

- 99mTc-DMSA nuclear scan can detect early renal cortical lesions from pyelonephritis. Radiologic findings in acute pyelonephritis depend upon the imaging modality used.
- 99mTc-DTPA is primarily a glomerular filtration agent. It is useful for evaluation of obstruction and renal function. It is less useful in patients with renal failure.
- As 99mTc-glucoheptonate (TGH) is partially concentrated and excreted and partially bound to the renal tubule, it allow collecting system visualization and cortical definition.
- 99mTc-mertiatide (MAG3), cleared by tubular secretion, and no glomerular filtration occurs. This is useful for evaluation of renal function, renal plasma flow ,renal cortical imaging characteristics (planar or SPECT) and diuretic scintigraphy

There are three tracers that rely on tubular extraction, 123I-hippuran, 99mTc-Mercaptoacetyltriglycine (99mTc-MAG3) and 99mTc-Ethylenedicysteine (99mTc-EC) and one tracer dependant on filtration, 99mTc-DTPA. The tracer, reflecting tubular extraction has a greater renal extraction than 99mTc-DTPA resulting in lower background activity and a higher kidney to background ratio.

17. Drugs commonly used in PME:

A. Dapoxetine
B. Tramadol
C. Clomopramine
D. Derefenacin
E. Theophyline

Answer: A, B, C.

Reference: *CAMPBELL-WALSH Urology 10th Ed /Reproductive and Sexual Function/ premature ejaculation/page 772 & 777.*

The ISSM expert panel defined PE as having three components:

(1) Ejaculation that always occurs before or within about 1 minute of vaginal penetration,
(2) Inability to delay ejaculation on all or nearly all vaginal penetrations, and
(3) Negative personal consequences such as distress, bother, frustration, and/or the avoidance of sexual intimacy.

Commonly use drugs for PME are:

- Clomipramine
- Fluoxetine
- Paroxetine
- Sertaline

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- Dapoxetine
- Tramadol

18. Drugs causing priapism are:

A. Prazosine
B. Paroxetine
C. Pentoxyfyline
D. Papaverine
E. Propanolone

Answer: A, D, E.

Reference: *CAMPBELL-WALSH Urology 10th Ed /Priapism/page 751*

Drugs causing Priapism	
α-Adrenergic Receptor Antagonists Prazosin, terazosin, doxazosin, tamsulosin	**Antihypertensives** Hydralazine, guanethidine, propanolol
Antianxiety Agents Hydroxyzine	**Drugs (Recreational)** Alcohol, cocaine, crack cocaine, marijuana
Anticoagulants Heparin, warfarin	**Hormones** Gonadotropin-releasing hormone, testosterone
Antidepressants and Antipsychotics Trazodone, bupropion, fluoxetine, sertraline, lithium, clozapine, resperidone, olazapine, chlorpromazine, thoridazine, phenothaizines	**Vasoactive Erectile Agents** Papaverine, phentolamine, prostaglandin E1, oral phosphodiesterase type 5 inhibitors, combination intracavernous therapy

19. Renal Stone with HDN during 2nd trimester of pregnancy, treatment of choice:

A. URS
B. DJ stent
C. PCNL
D. RIRS
E. ESWL

Answer: B

Reference: *CAMPBELL-WALSH Urology 10thEd/Surgical Management of Upper Urinary Tract Calculi/ page 1381-82*

- 50% to 80% of pregnant patients with symptomatic calculi will pass their stones spontaneously when treated conservatively with hydration and analgesia.
- Intervention is required in one third of patients, usually for pain uncontrolled by analgesia or signs of persistent obstruction and infection.
- In patients with obstruction best options are DJ stents or PCN, but due to change in urinary parameters during pregnancy there is increase encrustation of stents which need frequent change of stents 4-6 weekly.

20. Pregnancy all are true except:

A. Bacteriuria should be treated
B. 2/3rd patients need repeated admission
C. Repeated admission is criteria for surgery
D. For renal stone expectant management need hydration and analgesics
E. Only Few stone pass spontaneously

Answer: B, C, E.

Reference: *Campbell-Walsh Urology, 9th ed. / Bacteriuria in Pregnancy / Page289-291.*

Women with asymptomatic bacteriuria are at higher risk for developing a symptomatic UTI that results in adverse fetal sequelae (high incidence of prematurity, low birth weight, and death), complications associated with bacteriuria during pregnancy, and pyelonephritis and its possible sequelae, such as sepsis in the mother, all women with asymptomatic bacteriuria should be treated .

See explanation of question no 19.

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21. Drugs causing ARF in CKD:

A. ACE inhibitors
B. COX-2 inhibitor
C. Theophyline
D. Rifampicin
E. Acetyl cysteine

Answer: A, B, D.

Reference: *Campbell-Walsh Urology, 10th ed./Etiology, Pathogenesis, and Management of Renal Failure/page 1215*

Factors Associated with Acute Deteriorations in Chronic Kidney Disease

Nephrotoxic	**Drug-Induced**
Contrast-induced	Penicillin analogues
Aminoglycoside antibiotics	Cephalosporins
NSAIDs	Sulfonamides
Cox 2 inhibitors	**Rifampin**
Chemotherapeutic agents	Diuretics
Antirejection agents (cyclosporine, tacrolimus)	Thiazide
Anesthetic agents	Furosemide
Autoregulatory Dysfunction **ACE inhibitors** Angiotensin receptor blocker	**Interstitial** Hypercalcemia Hyperuricosuria Atheroemboli
Anatomic/Structural	**Hemodynamic/Perfusion Disorders**
ADPKD and ACE inhibitors	Congestive heart failure
Obstruction	Perioperative hypotension
Progressive renal artery stenosis	Volume depletion
Renal vein thrombosis	Gastrointestinal: bleeding, diarrhea, vomiting
Nephrolithiasis	Excessive diuresis
Parenchymal Injury	**Miscellaneous**
Acute myocardial infarction	Phenytoin
Valvular dysfunction	Allopurinol
Superimposed "new" glomerulonephritis	Cimetadine

22. Risk factors in CKD by contrast:

A. Multiple drug allergy
B. Poor hydration
C. Prior allergic reactions
D. DM
E. Hypertension

Answer: A, B, C, D.

Reference: *ACR Manual on Contrast Media– Version 8, 2012/Patient Selection and Preparation Strategies / page 5*

Risk Factors for adverse reaction to contrast:

- Age– adverse reactions are common in elderly.
- Allergies–A history of allergies doubles the risk of an adverse reaction.
- Anxiety
- Asthma–A history of allergic asthma increases the risk of reaction up to 5 times.
- Cardiac Disease–Severe cardiac disease carries an increased risk of reaction.
  Congestive heart failure, angina, cardiomyopathy, aortic valvular disease, and pulmonary hypertension.
- Dehydration–Dehydration has the potential to increase nephrotoxicity,

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- Diabetes
- Gout
- Interleukin-2 Immunotherapy
- Metformin
- Multiple Myeloma
- Pheochromocytoma
- Previous Contrast Reaction
- Sickle Cell Disease

23. Prevention of Contrast induced nephropathy in azotemic patients:

A. Prior hydration
B. Acetylcysteine for 48 hours
C. Dopamine agonist (fenoldopam mesylate)
D. Ionic contrast
E. Theophylline (adenosine antagonist)

Answer: A, B.

Reference: *Campbell-Walsh Urology, 10th ed /Renal Failure and Transplantation/ page 1208*

- Non-ionic contrast media have lower osmolality and tend to have fewer side-effects.
- Nonionic (LOCM) media has an improved safety profile over HOCM, with adverse reactions occurring in up to 3% of patients.

Protective strategies

- Pretreatment with N-acetylcysteine (600 mg orally twice daily for 48 hours) has been shown to reduce the incidence of radiocontrast induced nephropathy
- Isotonic hydration is superior to half-isotonic hydration in prevention of nephropathy
- IV hydration with sodium bicarbonate over sodium chloride given 1 hour before contrast exposure
- Studies did not find any protective benefit of the selective dopamine-1 agonist (fenoldopam mesylate) and theophylline (adenosine antagonist)
- Avoiding additional strain on the kidneys in the form of nephrotoxic drugs, oral cholecystographic agents, arterial clamping, renal arterial angioplasty, major surgery, etc, until the contrast medium has been cleared.
- Postponing a new contrast medium examination until renal function returns to pre-examination levels. (Minimum 24 hours)
- Patients on dialysis may receive contrast media for radiological procedures as iodinated contrast media are cleared by the dialysis process.

24. IVP and KUB-x-ray:

A. X-KUB has high sensitivity
B. Most calcium stone detected by X-KUB
C. IVP mandatory for renal stone surgery
D. CT is better than IVP
E. IVP delineate calyceal diverticuli

Answer: D, E.

Reference: *Campbell-Walsh Urology, 10th ed./Urinary Tract Imaging: Basic Principles/page100-106*

- Conventional X-ray KUB can give false-negative results, particularly if stone is radiolucent or it lies over the sacrum and iliac wings.
- Ultrasound is an excellent test to evaluate for renal parenchymal abnormalities, to differentiate solid from cystic structures, and evaluate hydronephrosis.
- Unenhanced CT has become the imaging modality of choice for evaluation of urolithiasis.
- Intravenous excretory urographic (IVU) study has essentially been replaced by CT and MRI.
- X-ray KUB is unreliable in the demonstration of calculus disease for various reasons:
  - overlying stool and bowel gas may obscure small calculi;
  - stones may be obscured by other structures such as bones or ribs

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– calcifications in pelvic veins /arteries may be confused with ureteral calculi
– stones that are poorly calcified or composed of uric acid may be radiolucent.

25. NCCT for renal stone true is:

A. Pre-op planning
B. Predict success of ESWL
C. Composition of stone
D. Skin to stone distance
E. Size and location of stone

Answer: A, C, D, E.

Reference:

- Campbell-Walsh Urology, 10th ed./Clinical Decision Making/page 128.
- Patricio García Marchiñena et al; CT Scan as a predictor of composition and fragility of urinary lithiasis treated with extracorporeal shock wave lithotripsy in vitro; Lithiasis, Arch. Esp. Urol. 2009; 62 (3): 215-221.

With the exception of some indinavir stones, all renal and ureteral stones can be detected on helical CT scan.

NCCT has a sensitivity of 96% - 100% and specificity between 92% - 100%.

The average HU values of the different stone compositions are:

- Calcium Oxalate monohydrate pure and mixed- 1193 HU (496- 1865)
- Calcium Oxalate dihydrate pure and mixed: 2122 HU (1853-2536)
- Struvite: 1543 HU (790-2143)
- Uric Acid: 419 HU (65-769)
- Magnesium Phosphate: 1517 HU

26. Renal cyst on MRI appears as:

A. T1 hypointense
B. T2 hyperintense
C. T1 hyperintense
D. T2 hypointense
E. No internal septa

Answer: A, B.

Reference: *Campbell-Walsh Urology, 10th ed/ Neoplasms of the Upper Urinary Tract/page 1494.*

27. Hypercalciurea true is:

A. Increase chances of stone
B. No increase chance of bone fracture
C. No need of BMD
D. DEXA scan required
E. BMD tell 10yrs future risk of fracture

Answer: A, D.

Reference: *Campbell-Walsh Urology, 10th ed/ page 3016.*

- Hypercalciuria is defined as > 200 mg of urinary calcium/day after adherence to a 400-mg calcium, 100-mg sodium diet for 1 week.
- Other definition of hypercalciuria is excretion >4 mg/kg/day or greater than 7 mmol/day in men and 6 mmol/day in women.
- The most common factor leading to urolithiasis is hypercalciuria,
- Dual-energy X-ray absorptiometry (DXA, previously DEXA) is a means of measuring bone mineral density (BMD).
- By measuring BMD, it is possible to predict fracture risk in the same manner that measuring blood pressure can help predict the risk of stroke.

28. Zolidronic acid false is:

A. Decrease BMD on IV administration
B. Mild rise in serum creatinine
C. Osteonecrosis of jaw
D. Monoclonal human antibody
E. Decrease fracture related complication as compared to placebo

Answer: A, D.

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Reference: *Spiegel R, Nawroth PP, Kasperk C.; The effect of zoledronic acid on the fracture risk in men with osteoporosis. J Endocrinol Invest. 2014 Jan 29.*

- Zoledronic acid is bisphosphonic acid monohydrate.
- Bisphosphonates accumulate in the mineralized bone matrix making it more resistant to dissolution by osteoclasts
- Bisphosphonates have proven to be effective inhibitors of bone resorption, particularly when given intravenously.
- The mechanism of action includes:
  - Inhibition of osteoclast maturation
  - Inhibition of osteoclast recruitment to the site of bone resorption .
  - Suppression of mature osteoclast function
  - Reduced production of cytokines
  - Direct antitumor activity
  - Inhibition of tumor-cell dissemination, invasion, and adhesion to the bone matrix
- Zoledronic acid clearance was independent of dose but dependent upon the patient's creatinine clearance.
- Clinical studies in patients with hypercalcemia of malignancy (HCM) showed that single-dose infusions of zoledronic acid are associated with decreases in serum calcium and phosphorus and increases in urinary calcium and phosphorus excretion.

SIDE EFFECTS

- Fever, muscle pain, headache, and pain in hands and feet.
- Low calcium levels may occur if calcium and vitamin D intake is not adequate.
- Reduced kidney function after administration of zoledronic acid has occurred.
- Patients may experience jaw problems (osteonecrosis of the jaw) associated with delayed healing and infection after tooth extraction.

29. Psoas hitch can damage nerve:

A. Femoral nerve
B. Genitofemoral nerve
C. Lateral cutaneous nerve of thigh
D. IL
E. IH

Answer: A, B.

Reference:

- *Campbell-Walsh Urology, 10th ed /Pediatric Urology/3462.*
- *Antonio Cardoso Pinto; José Rafael Macea; Marcello Toscano Pecorar; Femoral nerve neuropathy after the psoas hitch procedure; Einstein (São Paulo) vol.10 no.3 São Paulo July/Sept. 2012.*
- *Rosenow F, Haupt WF, Marong P.; Damage to the lumbosacral plexus in psoas hitch operation; Nervenarzt 1996 Feb;67(2):160-2.*
- The psoas hitch is used for the management of ureteral disease requiring replacement of varying lengths of the ureter. During this procedure the bladder is fixed to the psoas by 2 or 3 hitches of nonresorbable suture.
- Injuries to femoral nerve following psoas hitch are a potential complication.
- The FN is formed by the anterior divisions of the primary ventral branches from L2 to L4, and is the thickest and longest nerve of the lumbar plexus. It is responsible for the motor innervation of the iliopsoas, pectineus, sartorius and QFM, as well as for the sensory innervation of the skin of the anterior region of the thigh, medial region of the leg and dorsal portion of the foot.
- peripheral nerve injury to the lumbosacral plexus is a rare complication. Which results in hypesthesia and exercise-related pain in the areas supplied by the genitofemoral, the ilioinguinal and femoral nerve.
- For prevention of this nerve injury suture should not be deeper than 3 mm into the psoas muscle.

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30. Wilms tumor is associated with:

A. Li-Fraumeni
B. Frasier
C. Tuberous sclerosis
D. ADPKD
E. Fanconi syndrome

Answer: A, B.

Reference: *Campbell-Walsh Urology, 10th ed. / Pediatric Urologic Oncology/wilms tumor/page 3711.*

- Wilms tumor, or nephroblastoma, is the MC primary malignant renal tumor of childhood.
- This embryonal tumor develops from remnants of immature kidney.
- Various syndromes are associated with an increased incidence of Wilms' tumor. These syndromes may be divided into those characterized by overgrowth and those lacking overgrowth.
- Genitourinary abnormalities (renal fusion anomalies, cryptorchidism, hypospadias) seen in 4.5% of patients with Wilms' tumor
- Denys-Drash syndrome (DDS)- pseudohermaphroditism, renal mesangial sclerosis, and nephroblastoma
- WAGR syndrome (Wilms' tumor, Aniridia, Genital anomalies, mental Retardation)
- Aniridia is found in 1.1% of Wilms' tumor patients.
- WAGR patients are more likely to have bilateral tumors, and the condition is diagnosed at a younger age
- Syndromes Associated with Wilms Tumor

Syndrome	Wilms tumor risk
WAGR	50%
Denys-Drash	50%
Frasier	5%-10%
Beckwith-Wiedemann	5%-10%
Familial Wilms tumor	30%
Perlman	>20%
Mosaic variegated aneuploidy	>20%
Fanconi anemia D1	>20%
Simpson-Golabi-Behmel	10% (in males)
Li-Fraumeni	
Neurofibromatosis	
Sotos	
Trisomy 18	
Bloom	

31. HIV true is:

A. Gonococcal infection is carrier
B. Testicular atrophy is rare
C. ED rare
D. Ethical ambiguity (dilemma) regarding treatment of ED
E. HAART effect on sexual functions

Answer: A, D, E.

Reference:

- Presence of an Sexual Transmited Infections increases the risk of both transmitting and acquiring HIV infection.
- Of the NRTIs, zalcitabine is associated with peripheral neuropathy and painful penile ulcers. Of the protease inhibitors, ritonavir should be used with caution among patients at high risk of bleeding.
- Indinavir is a potent protease inhibitor that has been associated with urolithiasis.
- HIV, and HAART, can damage the nerves (neuropathy) and this can lead to erectile problems.

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ISBN 978-93-85999-93-2

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