URI-205

1st Lecture (Diuretics)

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Multiple Choice questions

1.Which of the following is inhibited *in the renal tubular cell* through *Furosemide?*

A. Na+-K+-2Cl– cotransporter

B. Na+-Cl– symporter

C. Na+-H+ antiporter

D. Na+ K+ ATPase

2. Which of the following substance do Thiazide diuretics and furosemide have directionally opposite effect on its net renal excretion?

A. Uric acid

B. Calcium

C. Magnesium

D. Bicarbonate

3. Which of the following *is the primary site of action of thiazide diuretics?*

A. Proximal tubule

B. Ascending limb of the loop of Henle

C. Distal convoluted tubules

D. Collecting ducts

4.* Which of the following *is cause of hyperglycaemia in Long-term thiazide therapy?

A. Reducing insulin release
B. Interfering with glucose utilization in tissues
C. Increasing sympathetic activity
D. Increasing corticosteroid secretion

5. A patient of congestive heart failure was being treated with furosemide and digoxin. He developed urinary tract infection. Which of the following antimicrobials should be avoided?

A. Ampicillin
B. Gentamicin
C. Norfloxacin
D. Cotrimoxazole

6. Which of the following is not itself an efficacious diuretic, and is used only as an adjuvant/corrective to other diuretics?

A. Acetazolamide
B. Metolazone
C. Spironolactone
D. Indapamide

7. Which of the following is the current therapeutic indication of acetazolamide?

A. Congestive heart failure
B. Renal insufficiency
C. Cirrhosis of liver
D. Glaucoma

8. Which of the following is a potassium retaining diuretic?

A. Triamterene
B. Trimethoprim
C. Tizanidine
D. Trimetazidine

9. Which of the following drugs if *used with potassium sparing diuretics needs close monitoring?*

A. Furosemide
B. Hydrochlorothiazide
C. Captopril
D. Verapamil

10. Which of the following *diuretic acts on the luminal membrane of distal tubule and collecting ducts to inhibit electrogenic Na+ reabsorption so that K+ excretion is diminished.*

A. Xipamide
B. Isosorbide
C. Triamterene
D. Spironolactone

11.* Which of the following is *the correct statement about osmotic diuretics?

A. They are large molecular weight substances which form colloidal solution
B. Their primary site of action is collecting ducts in the kidney
C. They increase water excretion without increasing salt excretion
D. They can lower intraocular pressure

12. Which of the following is an important effect of chronic therapy with loop diuretics?

A. Decreased urinary excretion of calcium

B. Elevation of blood pressure

C. Elevation of pulmonary vascular pressure

D. Metabolic alkalosis

13. A 50-year-old man has a history of frequent episodes of renal colic with calcium-containing renal stones. A careful workup indicates that he has a defect in proximal tubular calcium reabsorption, which results in high concentrations of calcium salts in the tubular urine. The most useful diuretic agent in the treatment of recurrent calcium stones is

A. Chlorthalidone

B. Diazoxide

C. Ethacrynic acid

D. Mannitol

14. Which of the following diuretics would be most useful in the acute treatment of a comatose patient with traumatic brain injury and cerebral edema?

A. Acetazolamide

B. Amiloride

C. Chlorthalidone

D. Mannitol

15. A 62-year-old man with advanced prostate cancer is admitted to the emergency department with mental obtundation. An electrolyte panel shows a serum calcium of 16.5 (normal 8.5–10.5 mg/dL). Which of the following therapies would be most useful in the management of severe hypercalcemia?

A. Acetazolamide plus saline infusion

B. Furosemide plus saline infusion
C. Hydrochlorothiazide plus saline infusion
D. Mannitol plus saline infusion

16. A 60-year-old patient complains of paresthesias and occasional nausea associated with one of the drugs she is taking. She is found to have hyperchloremic metabolic acidosis. Which of the following drugs is she probably taking?
A. Acetazolamide for glaucoma
B. Amiloride for edema associated with aldosteronism
C. Furosemide for severe hypertension and heart failure
D. Hydrochlorothiazide for hypertension

17. A graduate student is planning to make a high-altitude climb in South America while on vacation. He will not have time to acclimate slowly to altitude. Which of the following is a drug that is useful in preventing high-altitude sickness?
A. Acetazolamide
B. Amiloride
C. Demeclocycline
D. Desmopressin

18. Which of the following is the mechanism of action of Loop diuretics, such as Furosemide?
A. Inhibiting co-transport in the distal convoluted tubule
B. Inhibiting the Carbonic anhydrase enzyme in the proximal tubule
C. Inhibiting co-transport in the thick ascending limb of loop of Henle
D. Inhibiting Aldosterone action at the mineralocorticoid

19. Which of the following is a common side effect associated with Loop Diuretics?
A. Hypercalcemia
B. Metabolic Acidosis

C. Ototoxicity
D. Decreased plasma triglycerides

20. Which of the following is a unique action of Thiazide diuretics (e.g., Hydrochlorothiazide) that distinguishes them from Loop diuretics?

A. Increase the excretion of Mg^{++}
B. Cause Hypokalemia
C. Increase the reabsorption of Ca^{++}
D. Inhibit the co-transport Na^{+}-K^{+}-$2Cl^{-}$.

21. Which of the following is the mechanism of action of Spironolactone?

A. Inhibiting Carbonic Anhydrase in the proximal tubule.
B. Blocking renal epithelial channels in the collecting ducts.
C. Antagonizing aldosterone action at mineralocorticoid receptors in the collecting tubules.
D. Inhibiting the co-transport in the distal convoluted tubule.

22. Which of the following is a therapeutic indication of Acetazolamide; a Carbonic Anhydrase Inhibitor?

A) Acute renal failure
B) Nephrogenic diabetes insipidus
C) Acute Mountain Sickness
D) Hyperkalemia

Modified Essay Questions

1. Explain the mechanism of action of loop diuretics.

2. Mention FOUR therapeutic uses of loop diuretics.

a) ----------.

b) ----------.

c) ----------.

d) ----------.

3. Mention FOUR adverse effects of loop diuretics.

a) ----------.

b) ----------.

c) ----------.

d) ----------.

4. Explain the mechanism of action of thiazide diuretics.

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5. Mention FOUR therapeutic uses of thiazide diuretics.

a) ----------.

b) ----------.

c) ----------.

d) ----------.

6. Mention FOUR adverse effects of thiazide diuretics.

a) ----------.

b) ----------.

c) ----------.

d) ----------.

7. Mention FOUR therapeutic uses of osmotic diuretics.

a) ----------.

b) ----------.

c) ----------.

d) ----------.

8. Mention TWO therapeutic uses of carbonic anhydrase inhibitors.

a) ----------.

b) ----------.

c) ----------.

d) ----------.

9. Explain the mechanism of action of K sparing diuretics.

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10. Explain the mechanism of action of carbonic anhydrase inhibitors.

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END of Questions

GOOD LUCK