

1) patients with low GFR which pain killer should they avoid?

Answer: Non steroidal anti-inflammatory

2) all of the following contribute to autoregulation except?

Answer: Atrial natriuretic peptide(ANP)

3) Hormone increase efferent arteriole resistance and increase GFR?

Answer: ANG II

4) Which of the following doesn't happen in case of excessive aldosterone?

Answer: dehydration and acidosis

5) Which of the following is not a physiological regulator for aldosterone?

Answer: ANG I

6) Hormone increase efferent arteriole resistance and increase GFR?

Answer: ANG II

7) In a patient with lack of ADH, which segment is the most diluted?

a)Thin descending

b)Thin ascending

c)Thick ascending

d) Late distal + Cortical collecting

8) Which of the following not secreted from kidney ?

A) Renin

B) Erythropoietin

C) ADH

D) Calcitriol

9) what happen when FF increase?

Answer: GFR increase from afferent to efferent

10) Which of the following is a function of the kidney?

a) production of RBC.

b) eliminate CO₂

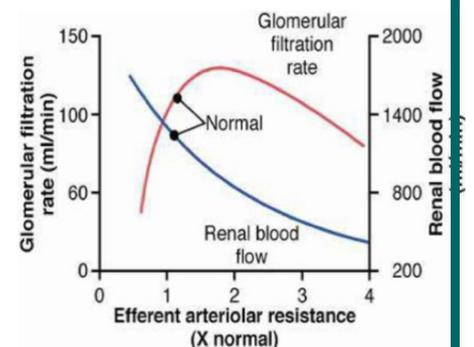
c) balance of electrolytes

12) Highest tubular fluid to plasma concentration in PCT?

Answer: creatinine

13) which statement is true about this curve:

Answer: when Re increases 3 folds, GFR decreases.



Use the following laboratory test results to answer these questions(14-16):

Urine plasma flow = 1ml/min

Urine inulin concentration = 100 mg/ml

Plasma inulin concentration = 2 mg/ml

Urine urea concentration = 50 mg/ml

Plasma urea concentration = 2.5 mg/ml

14) what is the GFR?

a. 50 ml/min.

b. 50 ml/min

c. 100 ml/min

d. 125 ml/min

15) What is the net urea reabsorption rate?

a. 0 mg/min.

b. 25 mg/min.

c. 50 mg/min

d. 75 mg/min * The right answer

16) what is the clearance value?

a. 0 mg/min

b. 25 mg/min.

c. 50 mg/min

d. 75 mg/min

e. 100 mg/m.

1-Which of the following would tend to induce hyperkalemia?

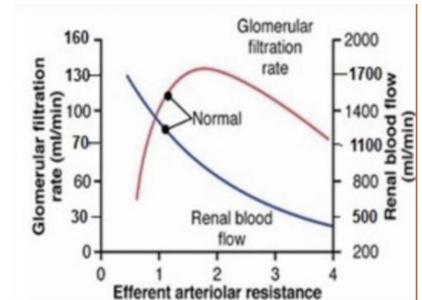
- A tumor secreting excess aldosterone.
- A mild increase in potassium intake in a person with normal kidneys and normal aldosterone system
- A tumor secreting renin.
- Long-term treatment with a diuretic such as furosemide
- Long-term treatment with a diuretic such as amiloride

2-The highest renal clearance rate of any substance would not exceed:

- Glomerular filtration rate
- Renal plasma flow
- Renal blood flow
- Tubular reabsorption rate
- None of the above mentioned is correct.

3-Glomerular filtration rate (GFR) when efferent (e) arteriolar resistance is 2X normal, is higher than GFR when resistance is 4X normal due to the following:

- Glomerular capillaries oncotic pressure is lower at 4X (e) resistance due to decreased renal blood flow.
- Glomerular capillaries oncotic pressure is higher at 4X (e) resistance due to decreased renal blood flow.
- Glomerular hydrostatic pressure is higher at 2X (e) resistance than 4x (e)
- Capsular hydrostatic pressure is higher at 4X (e) resistance than 2X (e)
- Capsular oncotic pressure is higher at 4X (e) resistance than 2X (e)

**4- The effect of ANP (atrial natriuretic peptide) is the following:**

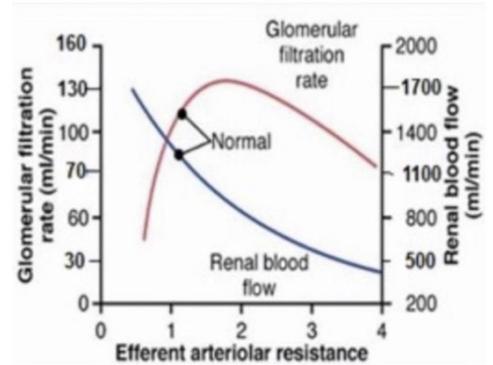
- Stimulates ANG II production.
- Stimulates release of ADH (anti diuretic hormone).
- Stimulates aldosterone.
- Decreases renal blood flow and increases reabsorption.
- Increases GFR and decreases reabsorption.

5- Which of the following substances would be filtered least readily by the glomerular capillaries?

- Polycationic dextran with a molecular weight of 5,000
- Polyanionic dextran with a molecular weight of 60 000
- Polycationic dextran with a molecular weight of 25,000
- Neutral dextran with a molecular weight of 25,000
- Polyanionic dextran with a molecular weight of 25,000

6-Calculate filtration fraction from the figure when efferent arteriolar resistance equals 3X normal:

- a. 24%
- b. 4%
- c. 12%
- d. 30%
- e. 2%



**7-Estimate GFR from the following data: Plasma creatinine concentration= 0.0125 mg / ml
Urine creatinine concentration = 0.125 mg/ ml, Urine flow rate = 1 ml/min.**

- a. 125 ml/min
- b. 0.01 ml/min
- c. 12.5 ml/min
- d. 10 ml/min
- e. 100 ml/min

8-A hypertensive 55 year old female was treated with furosemide (Lasix) for 3 weeks. Which of the following findings you would expect after the 3 weeks of treatment compared to before treatment with this drug?

- a. Increase in arterial pressure, decrease in extracellular fluid, decrease in plasma potassium.
- b. Decrease in arterial pressure, decrease in extracellular fluid, increase in plasma potassium.
- c. Decrease in arterial pressure, decrease in extracellular fluid, decrease in plasma potassium.
- d. Increase in arterial pressure, increase in extracellular fluid, decrease in plasma potassium.
- e. Decrease in arterial pressure, increase in extracellular fluid, decrease in plasma potassium.

9- Effects of angiotensin II on filtration and reabsorption rates under physiologic limits are the following:

- a. Decreases filtration rate, decreases reabsorption rate.
- b. No effect on filtration rate, no effect on reabsorption rate.
- c. Increases filtration rate, decreases reabsorption rate.
- d. Decreases filtration rate, increases reabsorption rate.
- e. Keeps normal filtration rate, increases reabsorption rate.

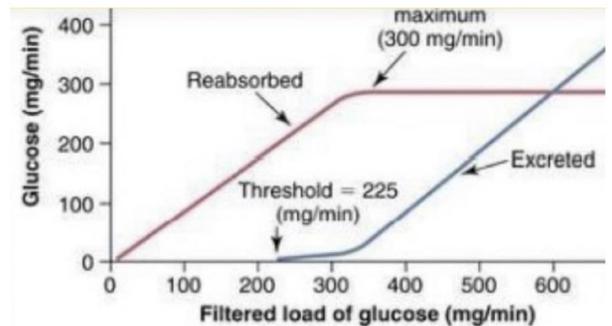
10-The following is TRUE regarding non-steroidal anti-inflammatory (NSAIDs) drugs:

- a. They reduce the coefficient of filtration, thus decrease GFR.
- b. They are vasodilators, they decrease afferent arteriolar resistance and increase GFR.
- c. They do not affect GFR.
- d. They inhibit synthesis of prostaglandins, reducing vasodilation of afferent arterioles and decrease GFR.
- e. They are vasoconstrictor agents; they increase afferent arteriolar resistance and decrease GFR.

6-D
7-D
8-C
9-E
10-D

11- A 32-year-old man complains of frequent urination. His estimated GFR is 150 ml/min. His plasma glucose is 4 mg/ml. Assuming that his renal transport maximum for glucose is normal, as shown in the figure below, what would be this patient's approximate rate of urinary glucose excretion?

- a. 300 mg/min
- b. 150 mg/min
- c. 0 mg/min
- d. 100 mg/min
- e. 200 mg/min



12-Which of the following changes would be expected in a patient with diabetes insipidus due to a lack of antidiuretic hormone (ADH) secretion?

- a. Decreased plasma osmolarity concentration, decreased sodium concentration, decreased plasma renin, normal urine volume.
- b. Normal plasma osmolarity concentration, normal sodium concentration, increased plasma renin, increased urine volume
- c. Increased plasma osmolarity concentration, increased sodium concentration, increased plasma renin, increased urine volume.
- d. Increased plasma osmolarity concentration, increased sodium concentration, normal plasma renin, normal urine volume
- e. Normal plasma osmolarity concentration, normal sodium concentration, decreased plasma renin, increased urine volume.

13-In diabetes mellitus, increased tubular fluid osmotic pressure will result in:

- a. Increased interstitial osmotic pressure and increased water reabsorption.
- b. Increased peritubular capillaries oncotic pressure and increased water reabsorption.
- c. Decreased water reabsorption, diuresis and polyuria.
- d. Increased peritubular capillaries hydrostatic pressure and decreased water reabsorption.
- e. Increased arterial hydrostatic pressure and GER.

14-Which of the following changes would you expect to find after administering a vasodilator drug that caused a 50% decrease in afferent arteriolar resistance and no change in arterial pressure?

- a. Increased renal blood flow, increased GFR, and increased peritubular capillary hydrostatic pressure, decreased reabsorption.
- b. Increased renal blood flow, increased GFR, and decreased peritubular capillary hydrostatic pressure, increased reabsorption.
- c. Decreased renal blood flow, decreased GER, and decreased peritubular capillary hydrostatic pressure, decreased reabsorption.
- d. Increased renal blood flow, increased GFR, and no change in peritubular capillary hydrostatic pressure, increased reabsorption.
- e. Decreased renal blood flow, decreased GFR, and increased peritubular capillary hydrostatic pressure, increased reabsorption.

15-Which of the following tends to decrease potassium secretion by the cortical collecting tubule?

- a. High sodium intake
- b. Acute hyperkalemia
- c. Increased plasma sodium concentration
- d. A diuretic that inhibits the action of aldosterone (e.g., spironolactone)
- e. Increased potassium intake

16-In normal kidneys, which of the following is true of the osmolarity of renal tubular fluid that flows through the early distal tubule in the region of the macula densa?

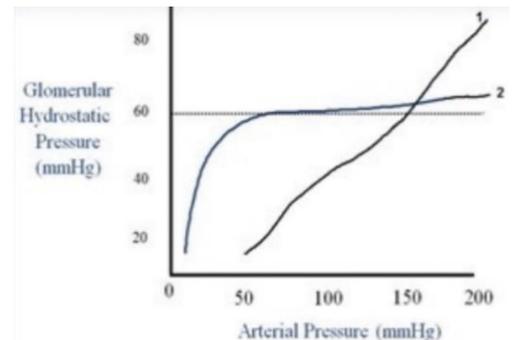
- a. Usually, hypertonic compared with plasma.
- b. Usually, isotonic compared with plasma.
- c. Usually, hypotonic compared with plasma.
- d. Hypertonic, compared with plasma, in antidiuresis (ADH)
- e. Hypotonic, compared with plasma, with diuretics

17-Given the following data about substance X and GFR, calculate the rate of net reabsorption or net secretion. GFR =100 ml/min, plasma concentration of X= 0.14 mg/ml, urine concentration of X= 2 mg/ml, urine flow = 1 ml/min:

- a. secretion=3.4 mg/min
- b. Secretion=1.2 mg/min
- c. Reabsorption= 12mg/min
- d. Secretion= 0.6 mg/min
- e. Reabsorption=1.4 mg/min

18-Looking at the graph below representing data from two patients (1 and 2), which of the following is correct?

- a. In curve 2, tubuloglomerular feedback in this patient is impaired.
- b. In curve 2, the patient is most probably taking renin angiotensin system blockers.
- c. In both curve 1 and curve 2, renal blood flow and GFR are not affected by changing arterial blood pressure.
- d. In curve 1, the patient has no renal autoregulation.
- e. In curve 1, GFR will be constant from 50 to 200 mmHg arterial pressure.



19-Which of the following changes tends to increase peritubular capillary fluid reabsorption?

- a. Increased efferent arteriolar resistance.
- b. Decreased filtration fraction.
- c. Decreased angiotensin II.
- d. Increased renal blood flow.
- e. Increased blood pressure.

20-Pressure natriuresis occurs due to the following factor/s:

- a. Inhibition of renin angiotensin aldosterone system.
- b. Increased peritubular hydrostatic pressure.
- c. Increased glomerular hydrostatic pressure.
- d. Increased production of prostaglandins and EDRF (NO).
- e. All of the above mentioned factors are corrected

15-D
16-C
17-C
18-D
19-A
20-E

1-A patient with uncontrolled diabetes and kidney disease has a GFR of 90 ml/min, a plasma glucose of 3mg/ml, and a transport max (T_m) is 150 nm/min. What is the glucose excretion rate for this patient?

- A-435 mg/min
- B-285 mg/min
- C-150 mg/min
- D-120 mg/min
- E-0 mg/min

2-How would blockade of prostaglandins synthesis by non-steroidal anti-inflammatory drugs affect 20 glomerular filtration rate (GFR) and renal plasma flow (RPF) in a patient with impaired renal function?

- A-It will increase both GFR and RPF
- B-It will decrease both GFR and RPF
- C-It will have no effect on GFR or RPF
- D-It will increase GFR and decrease RPF
- E-It will decrease GFR and increase RPF

3-Effects of angiotensin II on filtration and reabsorption rates are the following:

- A-Decreases filtration rate, decreases reabsorption rate
- B-Prevents a decrease in filtration rate, increases reabsorption rate
- C-Decreases filtration rate, increases reabsorption rate
- D-Prevents an increase in filtration rate, decreases reabsorption
- E-No effect on filtration rate, no effect on reabsorption

4-For kidney function evaluation of a 55-year-old diabetic man; Urine was collected in a 24-hour 4 period. Knowing the following results from analysis of his urine and plasma samples

Plasma creatinine = 0.01 mg/mL

Urine creatinine = 0.60 mg/ mL

Plasma potassium = 0.05 mmol/ml

Urine potassium = 0.2 mmol/ml

Urinary flow rate=1 ml/min

What is his approximate glomerular filtration rate (GFR)?

- A-10 mL/min
- B-30 mL/min
- C-60 ml/min
- D-80 mL/min

5-A tumor secreting aldosterone (primary aldosteronism) will cause the following:

- A-Hypotension
- B-Hypokalemia
- C-Acidosis
- D-Na⁺ wasting
- E-Fluid loss

- 1-D
- 2-B
- 3-B
- 4-C
- 5-B

6-Glomerular filtration rate (GFR) when efferent (e) arteriolar resistance is 2X normal is higher than GFR when resistance is 4X normal due to the following:

- A-Glomerular oncotic pressure is higher at 4X (e) resistance.
- B-Glomerular hydrostatic pressure is higher at 4X (e) resistance.
- C-Capsular hydrostatic pressure is higher at 4X (e) resistance
- D-Capsular oncotic pressure is higher at 4X (e) resistance
- E-None of the above is correct answer.

7-Reabsorption rate in the nephron is decreased by the following:

- A-Increased peritubular capillaries oncotic pressure
- B-Increased peritubular capillaries hydrostatic pressure
- C-Increased afferent arteriolar resistance
- D-Increased efferent arteriolar resistance
- E-Increased filtration fraction

8-What is the net renal tubular reabsorption rate of potassium in the patient described in the previous question? Knowing the following results from analysis of his urine and plasma samples

Plasma creatinine = 0.01 mg/mL

Urine creatinine = 0.60 mg/ mL

Plasma potassium = 0.05 mmol/ml

Urine potassium = 0.2 mmol/ml

Urinary flow rate=1 ml/min

- A-Potassium is not reabsorbed, instead secreted in this example
- B-3.2 mmol/min
- C-2.8 mmol/min
- D-0.280 mmol/min
- E-1.8 mmol/min

9-In the absence of ADH, tubular fluid in the following nephron segment has the lowest osmolarity of all other nephron segments:

- A-Early Distal convoluted tubule
- B-Late distal and collecting duct
- C-Thin descending limb of Henle
- D-Proximal convoluted tubule
- E-Thick ascending limb of Henle

10-In diabetes mellitus, diuresis and polyuria occurs by the following mechanism:

- A-Increased arterial hydrostatic pressure and GFR
- B-Increased interstitial osmotic pressure and increased water reabsorption
- C-Increased tubular fluid osmotic pressure and decreased water reabsorption
- D-Increased peritubular capillaries oncotic pressure and increased water reabsorption
- E-Increased peritubular capillaries hydrostatic pressure and decreased water reabsorption

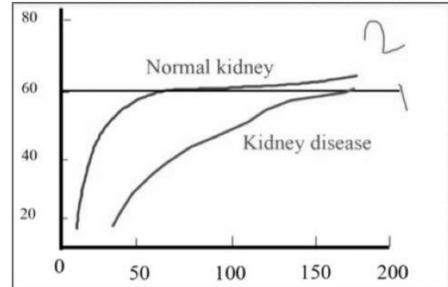
11-Pressure natriuresis occurs by the following mechanism:

- A-Stimulation of renin angiotensin system
- B-Increase in GFR and decrease in Na⁺ reabsorption rate
- C-Stimulation of aldosterone
- D-Stimulation of antidiuretic peptide (ADH)
- E-Decrease in peritubular hydrostatic pressure

6-A
7-B
8-C
9-B
10-C
11-B

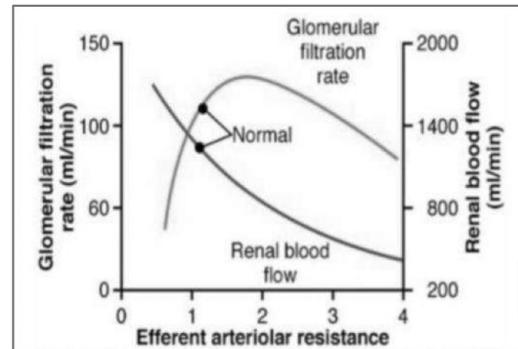
Q1: what is true regarding this graph?

Answer: renal autoregulation is impaired in 1



Q2: The graph shows GFR and RBF for efferent arteriole, what changes would be in the afferent arteriole graph?

Answer: RBF is the same and GFR decreases all the way



Q3: Angiotensin II

Answer: prevents decrease in filtration and increases reabsorption

Q4: To decrease renal reabsorption:

Answer: increase peritubular hydrostatic pressure

Q5: Given that Urine flow= (number) and the concentration of creatinine in urine= (number) and the plasma concentration of creatinine equals= (number) What is the value of GFR?

To answer the question, you should remember that for creatinine $GFR = \text{Clearance}$

Answer: $GFR = 100$

Q6: Highest Filterability

Answer: small radius, cationic

Q7: ANP:

Answer: inhibits angiotensin II

Q8: aldosterone secreting tumor

Answer: hypokalemia

Q9: Diabetes mellitus causes an:

Answer: increase in osmotic pressure and decrease water reabsorption

Q10: Giving anti-inflammatory drug that causes Inhibition of prostaglandin synthesis for a patient with impaired filtration, GFR, RBF?

Answer: GFR decreases, RBF decreases

Q11: Diabetes mellitus:

increase osmotic and decrease water reabsorption

Q12: determine the filtration fraction from a given data.

Q13: The maximum possible clearance rate of a substance that is completely cleared from the plasma by the kidneys would be equal to renal plasma flow, so we use.....clearance to estimate RPF.

Answer: Paraminohippuric acid (PAH)

Q14: given:

-Transport maximum from a graph

-GFR

-plasma Glucose

determine the glucose excretion for this patient?

Answer: first you have to calculate the filtered load which is (GF X plasma glu)

Then (glucose excretion= filtered load - transport maximum)

Q15:All of the following false regarding antidiuresis hormon except?

-secreted by posterior pituitary gland (not sure)

Q16: Place where most of nutrients (Na K HCO₃) are reabsorbed:

Proximal

Q17: Place where H₂O is reabsorbed only without nutrients:

Thin descending

Q18:place where Na/k/Cl channel and it's called diluting segment:

Thick ascending

Q19: if ADH is absent; in which of the following segments the filtrate will be hypotonic:

Distal + collecting

Q20: which of the following happens if you have taken an anti-inflammatory drug?

a. vasoconstriction on afferent.

b. Stop producing prostaglandin so inhibits the vasodilation.

c. GFR decreases and k decreases.

Q21:something increase reabsorption:

Increasing resistance of efferent

Q22:something increases GFR:

A-increasing in Kf

B-increasing in Bowman's hydrostatic pressure

Ans:A

Q23:

~ أسئلة عن الأنابيب اللي بصير فيهن امتصاص المواد في الكلية
متذكر بعضهن

**Most of glucose reabsorption in proximal tubule
Passive reabsorption of minerals and not permeable to
water in thin ascending**

Forisimide acts on حليته بس ناسيه
وكأنه كان في كمان فرعين لو ناس متذكر

~ Na concentration in blood equals 300g/ml and GFR

=150

Transport maximum =350

Calculate sodium excreted

100

Q24:

~ إذا أسعفتني ذاكتري
السؤال تبع د. إباء كانت أرقامه

Urine flow rate=1

Inulin concentration in urine=120

Inulin concentration in plasma=2

Urea concentration in urine=50

Urea concentration in plasma=2,5

أربع أفرع

GFR=60(1)

filtered load of urea=150(2)

reabsorption of urea=100(3)

secretion of urea=0(4)

لا ينال العلم ملول 🤖