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MSK Block

Review Questions





Purine Degradation & Gout



Q1-What is the major source of dietary nucleic acids (purine and pyrimidine)? And why?

Q2-Purine and pyrimidine bases are absorbed by the?

A-Stomach

B-Intestine

C-Liver

Q3-Which one of the following enzymes converts dietary DNA/RNA into nucleotides?

A-Nucleotidases

B-Pancreatic nucleases

C-Nucleosidases

Q4-Which one of the following enzymes converts nucleotides into nucleosides?

A-Nucleotidases

B- Pancreatic nucleases

C- Nucleosidases

Q5- Which one of the following enzymes converts nucleosides into Free purine bases+ ribose?

A-Nucleotidases

B- Pancreatic nucleases

C- Nucleosidases

Q6-What is the final product of pyrimidine degradation pathway?

A-Malonyl Coa

B-Uric acid

C-Ribose

 Q7-Which one of the following is purine?

A-Cytosine

B-Uracil

C-Adenosine

D-Thymine

Q8-What is the final product of purine degradation pathway?

A-Malonyl Coa

B-Ribose

C-Uric acid

Q9-What is the enzyme that converts xanthine into uric acid?

Q10-What is the enzyme that converts adenosine into inosine?

Q11-Some animals convert uric acid to other products, name two of them.

Q12-Which one of the following enzymes convert uric acid into allantoin?

A- Allantoinase

B- Allantoicase

C-Urate oxidase

D-Urease

Q13-Which one of the following enzymes convert allantoin into allantoic acid?

A- Allantoinase

B- Allantoicase

C-Urate oxidase

D-Urease

Q14-Which one of the following enzymes convert urea into ammonia?

A- Allantoinase

B- Allantoicase

C-Urate oxidase

D-Urease

Q15-Why can’t humans convert uric acid into allantoin or allantoic acid?

Q16-Why do reptiles, insects and birds excrete uric acid as paste of paste?

Q17-Humans excrete uric acid as?

A-Stool

B-Sweat

C-Urine

Q18-In gout, uric acid accumulates in the joint because of?

A-overproduction

B-underexcretion

C-both

Q19-Gout is painful arthritic joint inflammation due to deposits of?

A-Insoluble calcium urate crystals

B-Insoluble sodium urate crystals

C- soluble calcium urate crystals

D-soluble sodium urate crystals

Q20-What is the normal levels of uric acid in body fluids?

A-Less than 7 mg/dL

B-more than 7 mg/dL

Q21-Sodium urate crystals accumulate in?

A-kidneys

B-ureter

C-joint

D-all of above

Q22-Which one of the following decreases the excretion of the uric acid from kidney causing hyperuricemia?

A-Meat

B-Lead

C-Vegetables

D-Alcohol

Q23-Which one of the following causes primary gout?

A-Genetic abnormality in the enzymes

B-Chemotherapy

C-Excessive consumption of uric acid of purine-rich foods

Q24-Mention two disorders that causes secondary hyperuricemia?

Q25- A 45-year-old man was diagnosed with hyperuricemia, as a physician what will you do to manage the treatment? Explain why?

Q26- A man came to the clinic complaining of pain in his joints, he mentioned he is going through chemotherapy. (Taken from team435)

What is the disease?

What could be used as treatment?

After doing a laboratory examination, what could we find?

 Q27- A 42-year-old male patient undergoing radiation therapy for prostate cancer develops severe pain in the metatarsal phalangeal joint of his right big toe. Monosodium urate crystals are detected by polarized light microscopy in fluid obtained from this joint by arthrocentesis. Uric acid crystals are present in his urine. This patient’s pain is directly caused by the overproduction of the end product of which of the following metabolic pathways? (Taken from Lippincotts)

A. De novo pyrimidine biosynthesis.

B. Pyrimidine degradation.
C. De novo purine biosynthesis.
D. Purine salvage.

E. Purine degradation.

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| Answers |
| Q1 | Meat , because it has DNA and RNA ? |
| Q2 | B |
| Q3 | B |
| Q4 | A |
| Q5 | C |
| Q6 | A |
| Q7 | C |
| Q8 | C |
| Q9 | Xanthine oxidase  |
| Q10 | adenosine deaminase |
| Q11 | Allantoin, allantoic acid, urea , ammonia  |
| Q12 | C |
| Q13 | A |
| Q14 | D |
| Q15 | Because humans do not have enzymes to further degrade uric acid, which are urate oxidase and allantoinase |
| Q16 | To save water |
| Q17 | C |
| Q18 | C |
| Q19 | B |
| Q20 | A |
| Q21 | D |
| Q22 | B |
| Q23 | A |
| Q24 | Chronic renal disorders, chemotherapy(cancer) |
| Q25 | By giving him:* Anti-inflammatory drugs to reduce the pain
* Uricosuric agents to increase the excretion of the uric acid
* Xanthine oxidase inhibitors (Allopuirnol or Febuxostat) to reduce uric acid production
 |
| Q26 | * Secondary hyperuricemia
* Uricosuric agents (to increase the excretion of the uric acid)
* High level of uric acid (Underproduction of uric acid)
 |
| Q27 | E |