

## Analgesics/Toxicology MCQs

---

1. Regarding paraquat poisoning
  - a. The interval between ingestion and death is usually hours because of immediate pulmonary toxicity
  - b. Mechanism of action involves single electron oxidation of the herbicide to free radical species
  - c. Probable human lethal dosage is 50-500mg/kg
  - d. Oxygen high flow stops the pulmonary lesions occurring
  - e. Paraquat doesn't affect hepatic or renal functions
  
2. Regarding NSAIDs
  - a. Piroxicam has a half life of >50 hours
  - b. Aspirin reversibly inhibits COX
  - c. Diclofenac is a selective COX<sub>1</sub> inhibitor
  - d. Indomethacin is relatively free of adverse side effects
  - e. Ibuprofen is predominantly excreted unchanged in the urine
  
3. Regarding paracetamol (acetaminophen)
  - a. Less than 5% is excreted unchanged
  - b. Acetaminophen has no anti-inflammatory properties
  - c. The half life of paracetamol is 2-3 hours
  - d. Haemolytic anaemia has rarely been noted with paracetamol
  - e. All of the above are true
  
4. Regarding lead toxicity
  - a. Lead can induce an anaemia that is macrocytic
  - b. Young children absorb about 10% of ingested inorganic lead
  - c. Lead induced peripheral neuropathy often involves upper limb extensors resulting in wrist drop
  - d. High dose organic lead poisoning usually results in severe pneumonitis
  - e. All patients with elevated blood lead levels should have chelation treatment whether symptomatic or not
  
5. Regarding agents used to treat gout
  - a. As little as 8mg of colchicine taken over 24 hours may be fatal
  - b. Allopurinol is a xanthine oxidase stimulator
  - c. Probenecid is an organic alkaline substance
  - d. Colchicine may precipitate acute attacks of gout
  - e. Aspirin is effective against gout as it inhibits urate crystal phagocytosis

6. All of the following may be seen in organophosphate poisoning EXCEPT
- Salivation
  - Tachycardia
  - Fibrillation of muscle fibres
  - Bronchospasm
  - Vomiting
7. Regarding aspirin
- The average anti-inflammatory dose of aspirin is 0.6g up to 4 hourly
  - Aspirin's main side effect at usual doses is rash
  - Aspirin's antiplatelet effect lasts 8 – 10 days
  - At low toxic doses – respiratory acidosis may occur
  - Aspirin has a pka of 4.5
8. The main mechanism of action of colchicine is
- Inhibition of polymorphonuclear leucocytes
  - Inhibition of synoviocyte phagocytosis
  - Reduced formation of leukotriene D4
  - Inhibition of mononuclear phagocytes
  - Decreasing the body pool of urate
9. Aspirin inhibits all of the following EXCEPT
- Cyclo oxygenase
  - Recurrent miscarriages
  - Prostaglandin synthesis
  - Kallikrein system
  - Lipo oxygenase
10. Acetaminophen (paracetamol) can undergo all of the following biotransformation reactions EXCEPT
- Deamination
  - N-oxidation
  - Glucuronidation
  - Sulphation
  - Glutathione conjugation
11. Aspirin
- Is hydrolysed to acetone and salicylate
  - Exhibits first order kinetics with elimination in low doses
  - Is mostly conjugated by the liver and excreted in the bile
  - Reversibly blocks the cyclooxygenase enzyme
  - Causes an immediate doubling of bleeding time

12. Regarding NSAIDs
- At high doses diclofenac demonstrates zero order kinetics
  - Aspirin is a reversible inhibitor of cyclooxygenase
  - Aspirin at doses of <2g/day reduces uric acid levels
  - All NSAIDs can be found in synovial fluid after repeated dosing
  - Use of ibuprofen and aspirin together increases the anti inflammatory effect
13. The metabolic pathway of detoxification that becomes increasingly important in paracetamol toxicity is
- Conjugation with glucuronide
  - Oxidation
  - Reduction
  - Cytochrome p-450 dependent glutathione conjugation
  - Methylation
14. Which of the following NSAIDs has a t<sub>1/2</sub> of about 1 hour
- Diclofenac
  - Naproxen
  - Piroxicam
  - Indomethacin
  - Ibuprofen
15. Which of the following symptoms of aspirin toxicity occurs at plasma salicylate concentrations of 100mg/dl?
- Tinnitus
  - Vasomotor collapse
  - Metabolic acidosis
  - Gastric intolerance
  - Renal failure
16. All of the following drugs can cause a wide anion gap metabolic acidosis EXCEPT
- Lithium
  - Methanol
  - Cyanide
  - Salicylates
  - Isoniazid
17. Which of the following drug overdoses may be amenable to the elimination technique of haemodialysis
- Calcium channel blockers
  - Benzodiazepines
  - Valproate
  - Quinidine
  - Opioids

18. Which of the following antidote – drug pairings is INCORRECT
- Acetaminophen → n-acetyl cysteine
  - $\beta$  blockers → glucagon
  - Opioids → naloxone
  - Benzodiazepines → Flumazenil
  - Tricyclic antidepressants → physostigmine
19. Regarding carbon monoxide poisoning
- CO has an affinity for Hb that is about 2000 times that of oxygen
  - Hyperbaric oxygen is indicated as a treatment for all patients with CO Hb levels >20%
  - The average concentration of CO in the atmosphere is about 0.1ppm
  - With room air at 1atm the elimination half time of CO is about 80 minutes
  - The foetus is resistant to the effects of CO exposure
20. "Erethism" is seen in which of the following intoxications
- Lead
  - Mercury
  - Arsine gas
  - Penicillamine
  - Arsenic
21. All of the following are NSAIDs EXCEPT
- Sulindac
  - Piroxicam
  - Gemfibrozil
  - Ketorolac
  - Diflunisal
22. Drugs which enhance other drug metabolism include all of the following EXCEPT
- Rifampicin
  - Ketoconazole
  - Phenobarbital
  - Griseofulvin
  - Phenytoin
23. Which of the following has a high extraction ratio
- Trimethoprim
  - Valproic acid
  - Lignocaine
  - Metronidazole
  - Diazepam

24. Heparin and protamine used together is an example of
- a. Physiologic antagonism
  - b. Chemical antagonism
  - c. Partial agonism
  - d. Irreversible antagonism
  - e. Agonal agonism
25. The half life of a drug with a Vd of 200ml/70kg and clearance of 10ℓ/hr/70kg is
- a. 10 hours
  - b. 14 hours
  - c. 20 hours
  - d. 40 hours
  - e. Indeterminate

## **Analgesics/Toxicology MCQs - Answers**

### **1 July 2004**

---

1. c
2. a
3. e
4. c
5. a
6. b
7. c
8. a
9. e
10. a
11. b
12. d
13. d
14. a
15. c
16. a
17. c
18. e
19. c
20. b
21. c
22. b
23. c
24. b
25. b