Aviation Medicine Quiz

Dear Reader,

In this issue we bring you questions from Hyperbaric Medicine. Go through the questions and select the most appropriate response. The correct answers are given on page 73.

1. Toxic effects of O₂ was first reported by
   a. Priestly
   b. Beddoes and Watt
   c. Lavoisier and Seguin
   d. Haldane

2. Father of Pressure Physiology is
   a. Haldane  b. Paul Bert
   c. Davidson    d. Watt

3. Father of modern Hyperbaric Medicine
   a. Boerema  b. Paul Bert
   c. Illingworth  d. Brummelkamp

4. In vivo marker of active oxygen products with Hyperbaric Oxygen Therapy (HBOT)
   a. Increased urine creatinine
   b. Increased serum acetylamine
   c. Increased urine Methyl Guanidine
   d. Decreased serum creatinine

5. Uraemic Toxin is
   a. Urinary Cyanocobalamine
   b. Urinary acetylene guanidine
   c. Urinary creatinine
   d. Urinary methyl guanidine

6. John Bean Effect of HBO is
   a. Irreversible respiratory mucosal damage
   b. Reversible neurological damage
   c. Irreversible neurological damage
   d. Toxic effects on mitochondria and cell death

7. One of the following is not an enhancer of O₂ toxicity
   a. Vit A deficiency
   b. Aspirin
   c. CO₂
   d. Vit E deficiency

8. Which of the following parameter in the pulmonary function tests is reduced before any irreversible changes occur in the lungs?
   a. FEV₁  b. VC
   c. PEF  d. FEV₁%

9. One of the following can act as a protective agent against O₂ toxicity
   a. Allopurinol  b. Ammonia
   c. Epinephrine  d. Insulin

10. The only absolute contra indication for HBOT is
    a. Uncontrolled High Fever
    b. Malignancy
    c. Seizure disorders
    d. Untreated pneumothorax

11. Commonest reported complication of HBOT is
    a. Middle ear Barotrauma
    b. Pulmonary Barotrauma
    c. DCS
    d. Anxiety reactions

12. The following is a reversible complication of acute exposure to HBOT
    a. Cataract  b. Hypermetropia
    c. Presbyopia  d. None of the above
13. One of the following statements is true
   a. HBO increases the permeability of blood brain barrier
   b. HBO decreases the permeability of blood brain barrier
   c. HBO does not have any effect on the permeability of blood brain barrier
   d. HBO increases the permeability of blood brain barrier only in the inflammatory conditions.

14. The toxic effects of the following drug are decreased with HBO
   a. Sulphonamides
   b. Digitalis
   c. Heparin
   d. Aspirin

15. Pharmacokinetics of the following drug is not altered with HBO
   a. Adriamycin
   b. Mafenide acetate
   c. Sulphonamides
   d. Gentamicin

16. At the cellular level, Carbon Monoxide (CO) inhibits the following
   a. Cytochrome α 1 Oxidase
   b. Cytochrome α 2 Reductase
   c. Cytochrome α 3 Oxidase
   d. Cytochrome γ 3 Oxidase

17. The affinity of cytochrome oxidase to CO is - times more than that to Oxygen
   a. 20  b. 9
   c. 90  d. 200

18. Most common ECG abnormality in CO poisoning
   a. Depression of ST segment
   b. Prolongation of QT interval
   c. AV Block
   d. Extrasystole

19. A level of carboxy haemoglobin (COHb) at which the CO poisoning may be classified as ‘Severe’ is
   a. 5-10%  b. 10-20%
   c. 40-60%  d. > 70%

20. One of the following statements is true regarding the rationale for HBOT in infections.
   a. Bactericidal effect of Sulphonamides is increased synergistically ten to twenty fold with HBOT
   b. HBO inhibits the endotoxin production
   c. HBO detoxifies the oxygen labile exotoxin
   d. The effect of HBOT is selective to gram negative bacteria.

21. Commonest cause of gas gangrene
   a. Anaerobic streptococci
   b. Bacteroides
   c. Cl. tertialis
   d. Cl. perfringans

22. ‘Amsterdam Therapeutic regimen’ of HBOT is used in
   a. Non-healing ulcer
   b. Gas gangrene
   c. Crepitant anaerobic cellulitis
   d. Osteoradionecrosis

23. The Marx protocol of HBOT for osteoradionecrosis is otherwise known as
   a. The University of Miami protocol
   b. Amsterdam Therapeutic regimen
   c. Epsteins protocol
   d. Rudge protocol

24. The following lesions of osteoradionecrosis of the jaw are directly allocated to stage III of Miami protocol except
   a. Cutaneous fistula
   b. Pathological fracture
   c. Radiological evidence of bone absorption
   d. Osteoradionecrosis of both maxilla and mandible.
25. Chandler’s Grading system is used in the evaluation of
   a. Osteoradionecrosis of vertebrae
   b. Laryngeal radionecrosis
   c. Mandibular radionecrosis
   d. Radiation myelitis

26. Rate of O₂ consumption by the lens is
   a. 2.5 ml/min
   b. 0.2-0.5 ml/min
   c. 25-50 ml/min
   d. 100 ml/min

27. Most common indication of HBOT in ophthalmology is
   a. CRAO
   b. CRVO
   c. Retinal detachment
   d. Retinal neovascularization

28. Choose the correct statement
   a. O₂ tension in the anterior chamber is higher than vitreous
   b. O₂ diffusion across the cornea is more inwards than outwards
   c. Retina has the lowest rate of O₂ consumption in the body
   d. HBOT does not have any useful role in diabetic retinopathy.

29. HBOT is indicated as a cost effective treatment in diabetic foot
   a. Grade II
   b. Grade III
   c. Grade IV
   d. Grade V

30. All the following changes in blood biochemistry are noticed in CO poisoning except
   a. Increased serum lactate
   b. Increased creatine kinase
   c. Hyperglycaemia
   d. Decreased pyruvate

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