وَقُل رَّبِّ زِدْنِي عِلْمًا

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RESPIRATORY SYSTEM

HAYAT BATCH

SUBJECT : Biochemistry

LEC NO. : lecture 3+4 questions

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Respiratory System

Lecture 3

1. The results from the ABG results show pH 7.32, P_aCO_2 27 mmHg, and HCO_3^- 19 mEq/L. What does this mean?

A. Respiratory Alkalosis, Fully Compensated.

B. Metabolic Acidosis, Uncompensated.

C. Metabolic Acidosis, Fully Compensated.

D. Respiratory Acidosis, Uncompensated.

2. Measurement of arterial blood gas shows pH 7.0, P_aO_2 90 mmHg, P_aCO_2 23 mmHg, and HCO_3^- 12 mmol/L; other results are Na^+ 126 mmol/L, K^+ 5 mmol/L, and Cl^- 95 mmol/L. What is your assessment?

A. Respiratory Acidosis, Uncompensated.

B. Respiratory Acidosis, Partially Compensated.

C. Metabolic Alkalosis, Uncompensated.

D. Metabolic Acidosis, Partially Compensated.

3. The results from the ABGs show pH 7.57 ', P_aCO_2 37 mmHg and HCO_3^- 30 mEq/L. What is your assessment?

A. Metabolic Acidosis, Uncompensated.

B. Metabolic Alkalosis, Uncompensated.

C.Respiratory Alkalosis, Uncompensated.

D. Metabolic Alkalosis, Partially Compensated.

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4. The ABGs reveal pH 7.61, P_aCO_2 22 mmHg, and HCO_3^- 25 mEq/L. What is the ABG interpretation based on the findings?

A. Metabolic Acidosis, Uncompensated.

B. Respiratory Alkalosis, Partially Compensated.

C. Respiratory Alkalosis, Uncompensated.

5. The normal concentration of bicarbonate in blood is:

A. 21 mEq/L.

B. 24 mEq/L.

C. 26 mEq/L.

D. 30 mEq/L.

6. Measurement of arterial blood gas shows pH 7.3, P_aCO_2 68 mmHg, HCO_3^- 28 mmol/L, and P_aO_2 60 mmHg. How would you interpret this?

A. Respiratory Acidosis, Uncompensated.

B. Respiratory Acidosis, Partially Compensated.

C. Metabolic Alkalosis, Uncompensated.

7. The attending physician orders routine ABGs following an assessment of the ABCs. The ABG results are pH 7.35, P_aCO_2 72 mmHg, and HCO_3^- 38 mEq/L. What acid-base disorder is shown?

A. Respiratory Acidosis, Uncompensated.

B. Respiratory Acidosis, Fully Compensated.

C. Respiratory Alkalosis, Fully Compensated.

D. Metabolic Alkalosis, Partially Compensated.

8. Measurement of arterial blood gas reveals pH 7.6, P_aO_2 120 mmHg, P_aCO_2 31 mmHg, and HCO_3^- 25 mmol/L. What does this mean?

A. Respiratory Alkalosis, Uncompensated.

B. Respiratory Acidosis, Partially Compensated.

C. Metabolic Alkalosis, Uncompensated.

9. Measurement of arterial blood gas shows pH 7.0, P_aO_2 90 mmHg, P_aCO_2 22 mmHg, and HCO_3^- 14 mmol/L; other results are Na^+ 120 mmol/L, K^+ 2.5 mmol/L, and Cl^- 95 mmol/L. As a knowledgeable medical student, you know that the normal value for P_aCO_2 is:

A. 22 mmHg.

B. 36 mmHg.

C. 48 mmHg

D. 50 mmHg.

10. the following values were acquired from an arterial blood sample: pH 7.55, P_aCO_2 52 mmHg and HCO_3^- 40 mmol/l. What is the underlying disorder?

A. Metabolic Acidosis.

B. Metabolic Alkalosis.

C. Respiratory Acidosis.

D. Respiratory Alkalosis.

11. Measurement of arterial blood gas shows pH 7.10, P_aCO_2 70 mm Hg, and HCO_3^- 24 mEq/L. What does this mean?

A. Respiratory Alkalosis, Uncompensated.

B. Respiratory Acidosis, Uncompensated.

C. Metabolic Alkalosis, Uncompensated.

12. Measurement of arterial blood gas shows pH 7.5, P_aO_2 85 mmHg, P_aCO_2 40 mmHg, and HCO_3^- 34 mmol/L. What acid-base disorder is shown?

A. Respiratory Alkalosis, Uncompensated.

B. Respiratory Acidosis, Partially Compensated.

C. Metabolic Alkalosis, Uncompensated.

D. Metabolic Alkalosis, Partially Compensated.

1.c
2.d
3.b
4.c
5.b
6.b
7.a
8.a
9.b
10.b
11.b
12.c

Respiratory System

Lecture 4

1. Which of the statements regarding hemoglobin is incorrect?

A. Cooperative binding kinetic means that the affinity of Hb for the last oxygen molecule is about 300 times greater than for the first oxygen molecule.

B. The two polypeptide chains (α + β) within each dimer are held tightly together primarily by polar bonds.

C. Hb changes from the T to R state, increasing its affinity for oxygen.

D. T form is stabilized by protonation whereas R form is not.

E. More than one answer is correct.

2.What percentage of carbon dioxide is transported in the form of carbamino haemoglobin?

A. 15 - 25%.

B. 5 - 10%.

C. 3%.

3.Hemoglobin has a high content of this amino acid:

A. Proline.

B. Leucine.

C. Arginine.

D. Histidine.

4.What happens to the oxyhemoglobin bond to O_2 when the partial pressure of CO_2 rises?

A. Bond breaks easily in tissue.

B. Bond is strong in tissue cells.

C. There is not effect.

5.Chloride shift is:

A. H ions leaving the RBC in exchange of Cl^-.

B. Cl^- leaving the RBC in exchange of bicarbonate.

C.mBicarbonate ions return to plasma and exchanged with chloride which shifts into the cell.

6.Which one of the following statements concerning the binding of oxygen by hemoglobin is correct?

A. The Bohr effect results in a lower oxygen affinity at higher pH values.

B. Carbon dioxide increases oxygen affinity of hemoglobin.

C. The oxygen affinity of hemoglobin increases as the percentage saturation increases.

D. The hemoglobin tetramer binds four molecules of 2,3-bisphosphoglycerate.

E. Oxyhemoglobin and deoxyhemoglobin have the same affinity for protons.

7.After releasing O_2 at the tissues, hemoglobin transports:

A. CO_2 and protons to the lungs.

B. O_2 to the lungs.

C. CO_2 and protons to the tissue.

D. Nutrients.

8.Each hemoglobin molecule contains:

A. One iron atom.

B. Two iron atoms.

C. Four iron atoms.

D. Six iron atoms.

9.One haemoglobin carries _____ molecule(s) of oxygen, and _____ BPG molecule(s).

A. 2, 1.

B. 2, 2.

C. 3, 1.

D. 4, 1.

E. 4, 2.

10.Which one of the following statements concerning the ability of acidosis to precipitate a crisis in sickle cell anemia is correct?

A. Acidosis increases the oxygen affinity of hemoglobin.

B. Acidosis favors the conversion of hemoglobin from the taut to the relaxed conformation.

C. Acidosis decreases the ability of 2,3-bisphosphoglycerate to bind to hemoglobin.

D. None of the above.

11.When haemoglobin takes up oxygen there is a change in the structure due to the moving closer together of:

A. α chains.

B. β chains.

C. γ chains.

12.What happens when the concentration of BPG is higher in RBCs?

A. Increases the affinity to O_2.

B. Decreases the affinity to O_2.

C. Can't be determined.

D. There is no effect.

13.Which of the following molecules do not encourage the offloading of oxygen from haemoglobin in the Bohr effect?

A. H^+.

B. 2,3-BPG.

C. CO_2.

14.When carbon dioxide is increased in the blood, it _____.

A. Causes oxygen to bind less to hemoglobin.

B. Causes oxygen to bind more to hemoglobin.

C. Has no affect on the binding of oxygen to hemoglobin.

15.Which of the statements regarding hemoglobin is correct?

A. Protons, Carbon dioxide, & BPG have the same effect regarding the affinity of Hb to Oxygen.

B. Ferrous group is able to make 6 bonds (4 with N, 2 with N of histidine).

C. The Nitrogen of histidine in the E helix is directly bound to Heme.

D. We can obtain 2,3-BPG from Glycolysis.

1.b
2.a
3.d
4.a
5.c
6.c
7.a
8.c
9.d
10.d
11.b
12.b
13.d
14.a
15.a