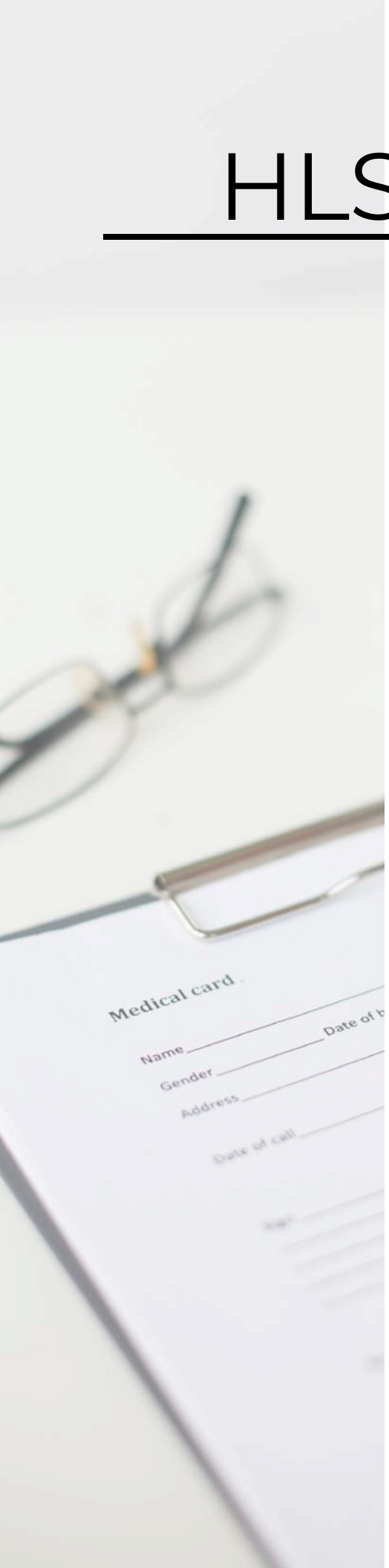
HLS-Biochemistry



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Lecture6

Hemoglobinopathies

HLS-Biochemistry Lecture 6

1. Geneticinsufficiencyin__resultsinhydropsfetalis?

A. 4 deletions of Alpha genes
B. 2 deletions of Beta genes
C. 1 deletion of Alpha gene + 1 Beta gene mutation
D. 3 deletions of Beta genes

ANSWER: A

2. What is the genetic composition of HbD trait and Cooley's anemia ?

A. HbA/D, β+1 β+1
B. HbA, β0 β0

ANSWER: A

3. Which of the following is not associated with sickle cell disease?

A. Deoxygenated hemoglobin S polymerization
B. Chronic hemolytic anemia
C. Oxygenated hemoglobin S solubility
D. Increased risk of malaria infection

ANSWER: D

4. A woman has heterozygous sickle cell anemia , heterozygous hemoglobin C disease , and alpha thalassemia minor. What is her most likely genetic composition?

A. HbS/C, αα/α-
B. HbS/A, α-/--
C. HbS/C, --/αα
D. HbA/C, --/αα

ANSWER: C or it can be (HbS/C , α-/α-)

5. Beta thalassemia is associated with?

A. Decreased HbA, increased HbF
B. Increased HbA, decreased HbF
C. Normal HbA, decreased HbF
D. Decreased HbA, normal HbF

ANSWER: A

HLS-Biochemistry Lecture 6

6. Whatisthegenotypeofapatient with HbCtrait,HbDtrait,Cooley'sanemia,and α-thalassemia minor?

A. HbC β+3 /HbD β0, -α/-α
B. HbC β+3 /HbA, --/αα
C. HbA/HbD β0, -α/--
D. HbC β+3 /HbD β0 , αα/αα

ANSWER: A

7. What is Hemoglobin S (HbS)?

A. An abnormal hemoglobin where valine replaces glutamic acid at position 6 of the β-globin chain, causing sickle cell anemia.
B. An abnormal hemoglobin where lysine replaces glutamic acid at position 6 of the β-globin chain, causing mild hemolytic anemia.
C. A normal hemoglobin variant with increased oxygen affinity, seen in thalassemia.
D. An unstable hemoglobin due to deletions in the α-globin chain, leading to Heinz bodies.

ANSWER: A

8. Why does severe beta-thalassemia often not become clinically apparent until a child is several months old?

A. Overexpressionof γ-globincompensates for themissingβ-chains earlyinlife.
B. Elevated hemoglobin A2 compensates for the missing β-globin genes.
C. The α-globin genes don't turn on until several months after birth.
D. The γ-to-β-globin switch is not complete until several months after birth.
E. The oxygen needs of a newborn are minimal.

ANSWER: D

9. The mutations in [β] and [α] globin genes are variable causing different types of hemoglobinopathies, among them one is due to a mutation leading to unstable mRNA?

a. Unstablehemoglobindisorder.
b. Hemoglobin M variant.
c. Hereditary persistence of Hb F.
d. Hemoglobin Lepore.
e. Hemoglobin Constant Spring.

ANSWER: E

HLS-Biochemistry Lecture 6

10. asymptomatic microcytic anemia:

A. B minor thalassemia

B. 1 locus thalassemia

.Answer: a

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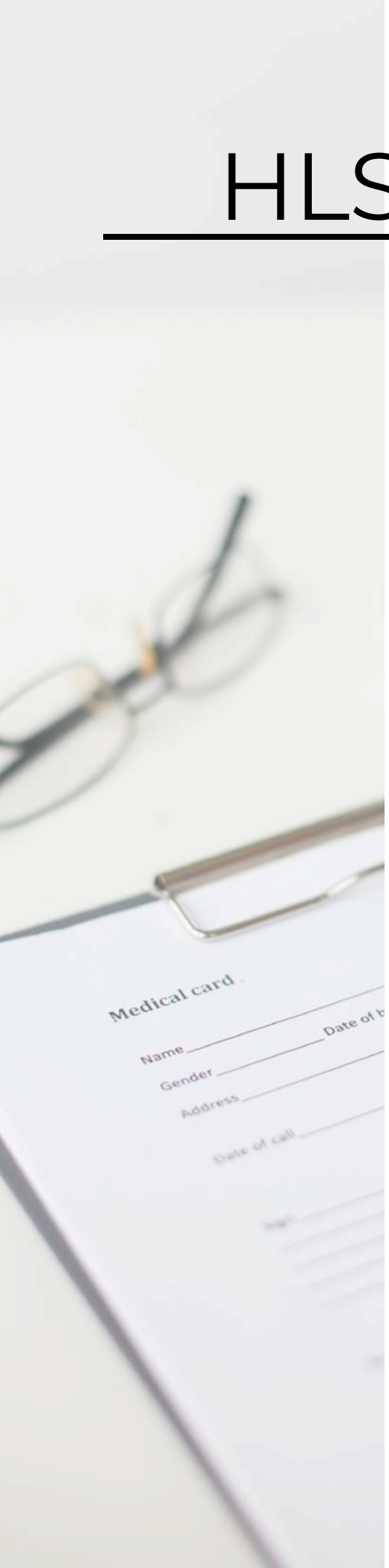

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Lecture7

Molecular basis of some blood coagulation disorders

HLS-Biochemistry Lecture 7

1. Whichofthefollowingisincorrectaboutdisseminatedintravascularcoagulation (DIC)?

A. Arises from obstetric complications
B. Involves release of cytokines
C. Increases tissue factor expression
D. Increases thrombomodulin expression
E. Causes multi-organ involvement

ANSWER: D

2. Which of the following is incorrect regarding Von Willebrand disease (vWD)**?

A. Most common types (1 and 2) are autosomal dominant (Type 3 is recessive).
B. Patients have compound defects in platelet function and coagulation mostly platelet defects produces clinical findings.
C. The major source of vWF is the liver.
D. vWF is stored in Weibel-Palade bodies (endothelial cytoplasmic granules).

ANSWER: C

3. Prothrombin time (PT) is prolonged in all of the following except?

A. Factor XII inhibition
B. Factor VII inhibition
C. Liver disease
D. Vitamin K deficiency
E. Factor X deficiency

ANSWER: A

4. Regarding hemophilia A and B, all of the following are correct except:

A. Prolonged aPTT not corrected by mixing patient's plasma with normal plasma
B. Both are X-linked recessive disorders.
C. Hemophilia A is the most common hereditary cause of serious bleeding.
D. Both present with identical clinical symptoms
E. Normal PT

ANSWER: A

HLS-Biochemistry Lecture 7

5. HemophiliaischaracterizedbyallofthefollowingEXCEPT:
A. Prolonged prothrombin time(PT)
B. Prolonged clotting time
C. Decreased clotting factors VIII, IX, or XI
D. Prolonged activated partial thromboplastin time (aPTT)
E. Hemarthrosis (joint bleeding)

ANSWER: A

6. What is the most common inherited coagulation/bleeding disorder**?
A. Hemophilia A
B. Von Willebrand disease
C. Hemophilia B
D. Factor V Leiden
E. Thrombocytopenia

ANSWER: B

7. Hemophilia A is caused by a deficiency of which clotting factor?
A. Factor V
B. Factor VII
C. Factor VIII
D. Factor IX
E. Factor X

ANSWER: C

8. Which condition leads to a deficiency in Factor IX that can be corrected by intravenous vitamin K?
A. Classichemophilia
B. Hepatitis B
C. Bile duct obstruction
D. Genetic deficiency in Antithrombin III
E. HemophiliaC

ANSWER: C

9. In Hemophilia A, the X-linked recessive clotting disorder caused by Factor VIII deficiency, the most common mutations in the gene encoding for factor VIII causing the disorder are :
A. Nonsensemutations
B. Deletion mutations
C. Point mutations
D. Frameshift mutations
E. Inversion mutation in intron 22

ANSWER: E

HLS-Biochemistry Lecture 7

10. A 12-year-old male patienthassufferedfrom a long historyof bleeding forhours or days after the injury aswellasrecurrent painful haemarthroses. Which of the following are the correct laboratory test findings that consistent with this case?

a. Prolonged PT, PTT and BT.
b. Prolonged PTT and PT with normal BT.
c. Specific assay for factor IX or factor VIII above than 100 U/dl.
d. Prolonged BT, normal PT and PTT and platelet less than 100.000/mm3.
e. Prolonged PTT and normal PT and BT.

ANSWER: E

11. Which of the following would best explain a prolonged bleeding time test?

a. Hemophilia A
b. Hemophilia B
c. Thrombocytopenia
d. Coumarin use
e. Hemophilia C

ANSWER: C

12. Disseminated intravascular coagulation is a blood coagulation disorder that results in sudden widespread of fibrin thrombi in the microcirculation affecting the vital organs. Choose the wrong one?

a. Itissecondarytootherillnesses.
b. Associated with the release of thrombolastic substances from the involved organs.
c. Endotoxins and cytokines are apparent.
d. Protein C is inhibited.
e. Thrombomodulin expression is not suppressed on the endothelium.

ANSWER: E

13. Von Willebrand disease is one of the commonest blood coagulation disorders, it could be due to genetic or acquired causes. What is correct about the disease?

a. All mutations causingvWFdisease are affectingquantitivelythe gene product
b. The mutations affecting vWF gene are associated with reduction of VIIa factor
c. There are some subtypes of one of the types of vWF disease.
d. The mutations affecting the gene encoding for vWF are not variable.
e. Medications are not inducing vWF disease

ANSWER: C

HLS-Biochemistry Lecture 7

14. Which of the following is incorrect about disseminated ?intravascular coagulation (DIC)

A. rises from obstetric complications ..
B. Involves release of cytokines
C. Increases tissue factor expression
D. Increases thrombomodulin expression
E. Causes multi-organ involvement

Ans: D

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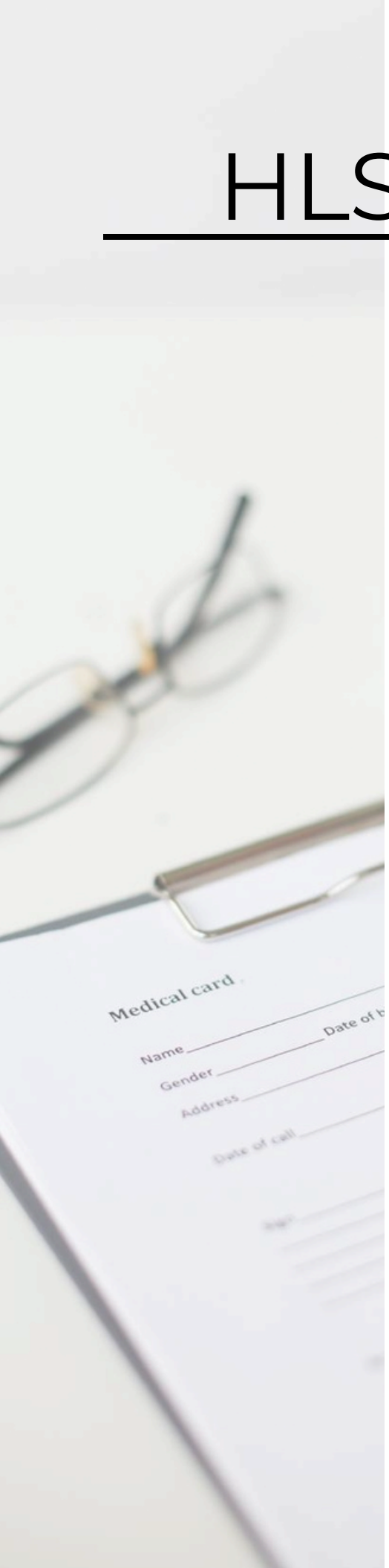

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Lecture8

Plasma proteins

HLS-Biochemistry Lecture 8

1. Whichproteinshaveanti-proteaseactivity?

A) α1-antitrypsin and α2-macroglobulin
B) Albumin and transferrin
C) Ceruloplasmin and haptoglobin
D) CRP and β2-microglobulin

ANSWER: A

2. Which set of plasma proteins is formed of carbohydrate and protein moieties ?

A) Albumin & transferrin
B) Transferrin & haptoglobin
C) Haptoglobin & transthyretin
D) Haptoglobin & ceruloplasmin
E) Alpha-1 antitrypsin & ceruloplasmin

ANSWER: D

3. Which set of plasma proteins is a marker of multiple myeloma?

A) Haptoglobin & ceruloplasmin
B) Alpha-2 macroglobulin & Bence Jones proteins
C) Beta-2 microglobulin & paraproteins
D) Bence Jones proteins & haptoglobin
E) Cryoglobulin & transferrin

ANSWER: C

4. Which of the following is one of the largest plasma proteins?

A) Albumin
B) α2-Macroglobulin
C) Transferrin
D) Haptoglobin
E) Ceruloplasmin

ANSWER: B

5. What markers are used to diagnose testicular cancer and rheumatoid arthritis, respectively?

A) α-Fetoprotein and cryoglobulins
B) β2-Microglobulin and rheumatoid factor
C) C-reactive protein and ceruloplasmin
D) Haptoglobin and α1-antitrypsin

ANSWER: A

HLS-Biochemistry Lecture 8

6. Whichmarkersareusedtodiagnosemultiplemyelomaandhepatoma, respectively?

A) Cryoglobulins & α-Fetoprotein
B) β2-Microglobulin & C-reactive protein
C) Bence Jones proteins & Ceruloplasmin
D) Paraproteins & Alkaline phosphatase

ANSWER: A

7. Which of the following diseases/disorders is commonly associated with polyclonal gammopathy?

A) Rheumatoid arthritis
B) Multiple myeloma
C) Smoldering myeloma
D) Monoclonal gammopathy of undetermined significance (MGUS)
E) Waldenström macroglobulinemia

ANSWER: A

8. Which main plasma protein primarily affects the osmotic pressure of plasma?

A) Gamma globulins
B) Albumin
C) Prothrombin
D) Fibrinogen
E) Alpha globulins

ANSWER: B

9. Protein electrophoresis shows a dense Alpha-2 globulin band. Which plasma proteins, when increased, cause this pattern?

A) Transcortinand haptoglobin
B) Ceruloplasmin and Alpha-2 macroglobulin
C) α-Fetoprotein and thyroid-binding protein
D) Polyclonal antibodies and transcortin
E) C-reactive protein and β-lipoprotein

ANSWER: B

10. The defensive function of plasma proteins is primarily due to which component?

A) Albumin
B) Globulins
C) Fibrinogen
D) Prothrombin
E) Both Albumin & Fibrinogen

ANSWER: B

HLS-Biochemistry Lecture 8

11. Whichplasmaproteinscanbeusedasbiomarkersforthediagnosisofmultiple myeloma?

A) β2-Microglobulin, paraprotein, andα-fetoprotein
B) α2-Macroglobulin, Bence Jones proteins, and β2-microglobulin
C) Bence Jones proteins, cryoglobulins, and paraprotein
D) β2-Microglobulin, α-fetoprotein, and α2-macroglobulin
E) α1-Antitrypsin, paraprotein, and C-reactive protein

ANSWER: C

12. Protein electrophoresis shows a dense Beta (β) globulin band. Which plasma proteins, when increased, cause this pattern?

A) Transcortin, haptoglobin, and ceruloplasmin
B) Transcortin, paraprotein, and alpha transcortin
C) α-Fetoprotein, transcortin, and thyroid-binding protein
D) Thyroid-binding protein, polyclonal antibodies, and α-fetoprotein
E) C-reactive protein, transferrin, and β-lipoprotein

ANSWER: E

13. What is the major component of the Alpha-2 (α2) protein fraction in plasma?

A) α1-Antitrypsin
B) Ceruloplasmin
C) Haptoglobin
D) α2-Macroglobulin
E) Transferrin

ANSWER: D

14. What markers are used to diagnose testicular cancer and rheumatoid arthritis, respectively?

A) a-Fetoprotein and cryoglobulins
8) B2-Microglobulin and rheumatoid factor
C. C-reactive protein and ceruloplasmin
D. Haptoglobin and al-antitrypsin

ANSWER: A

تم بحمد الله