



HEMOGLOBINOPATHIES AND CLINICAL LABORATORY TESTING

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The Cover Story and Clinical Issues published in this month's *MLO* are peer-reviewed.

Cover story learning objectives and CE questions were prepared by Jeanne M. Isabel, MEd, CLSPH(NCA), MT(ASCP), CLS Associate Professor, School of Allied Health and Communicative Disorders, Northern Illinois University in DeKalb, IL.

CE QUESTIONS

- Hemoglobin is a metalloprotein containing _____ heme groups.**
 - two
 - three
 - four
 - five
- Beta-globin chains are found on chromosome**
 - 11.
 - 16.
 - 20.
 - 22.
- In the healthy neonate, the predominant hemoglobin is**
 - Gower 1.
 - Hb A.
 - Hb A2.
 - Hb F.
- The term for hemoglobinopathies arising from decreased synthesis of globin chains is**
 - qualitative.
 - quantitative.
 - semi-quantitative.
- The hemoglobin structure variant for Hb C is**
 - $\beta 6(A3) \text{ Glu} > \text{Val}$.
 - $\beta 6(A3) \text{ Glu} > \text{Lys}$.
 - $\beta 26(B8) \text{ Glu} > \text{Lys}$.
 - none of the above.
- Consequences of hemolysis from sickle-cell disease include**
 - chronic anemia.
 - jaundice.
 - cholelithiasis.
 - all of the above.
- Thalassemia is classified by which adult globin gene is dysfunctional.**
 - TRUE
 - FALSE
- Loss of three α -globin genes results in**
 - no hematologic effect.
 - thalassemia trait.
 - Hb H disease.
 - Bart's hydrops fetalis.
- The method of choice for quantification and identification of hemoglobin variants is**
 - IEF.
 - HPLC.
 - solubility.
 - electrophoresis.
- Which of the RBC indices is considered a key diagnostic indicator of thalassemia?**
 - MCH
 - MCHC
 - MCV
 - MPV
- Hemoglobin H inclusions may be seen in stained cells and are comprised of**
 - DNA.
 - RNA.
 - β -globin tetramers.
 - reticulum.
- Hemoglobin electrophoresis as a screening tool to separate major hemoglobins results in some co-migration. Separation of Hb C from HbE is accomplished at**
 - acid pH.
 - alkaline pH.
- The method by which hemoglobin migrates in a pH gradient to a position of 0 (zero) negative charge is**
 - HPLC.
 - IEF.
 - PCR.
 - MLPA.

- 14. Prenatal molecular diagnosis of hemoglobinopathies utilizes DNA extracted from**
- amniotic-fluid cells.
 - white blood cells.
 - chorionic villi samples.
 - a and b.
 - a and c.
- 15. Neonatal screening provides presymptomatic diagnosis of sickle-cell disease and is followed by prophylactic ampicillin therapy.**
- TRUE
 - FALSE
- 16. Conditions that produce an FS phenotype on screening at birth are**
- sickle-cell disease.
 - sickle/ β -zero thalassemia.
 - sickle/ β -plus thalassemia.
 - sickle/delta- β thalassemia.
 - all of the above.
- 17. State screening programs analyze dried blood spots collected from infants by**
- eluate.
 - dilution.
 - culture media.
 - concentration.
- 18. PCR techniques for identification of globin-chain mutations or deletions include**
- allele-specific probes.
 - allele-specific primers.
 - amplification with flanking primers.
 - all of the above.
- 19. According to 2009 CAP proficiency surveys, HPLC accounted for 75% of the methods used for detection of hemoglobinopathies.**
- TRUE
 - FALSE
- 20. The technique that combines electrophoresis with automated sampling is**
- CIEF.
 - PCR.
 - RBC indices.
 - HPFH.

TEST ANSWER FORM

CE Test on HEMOGLOBINOPATHIES AND CLINICAL LABORATORY TESTING August 2009

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Shade circles like this: Not like this:

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P ① ② ③ ④ ⑤ E

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