A Primed Hemoglobinopathy Screen

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Case Description

A 27-year-old African American gravida 1 para 0 woman submitted a sample for hemoglobin (Hb)[3] evaluation as recommended by the American College of Obstetricians and Gynecologists (ACOG) *(1)*. The analysis performed by the Bio-Rad Variant II HPLC β-thalassemia assay revealed 96.3% Hb A, 1.5% Hb A_2, <1% Hb F, and a very small peak (1.2%) migrating in the region normally associated with Hb S (Fig. 1).

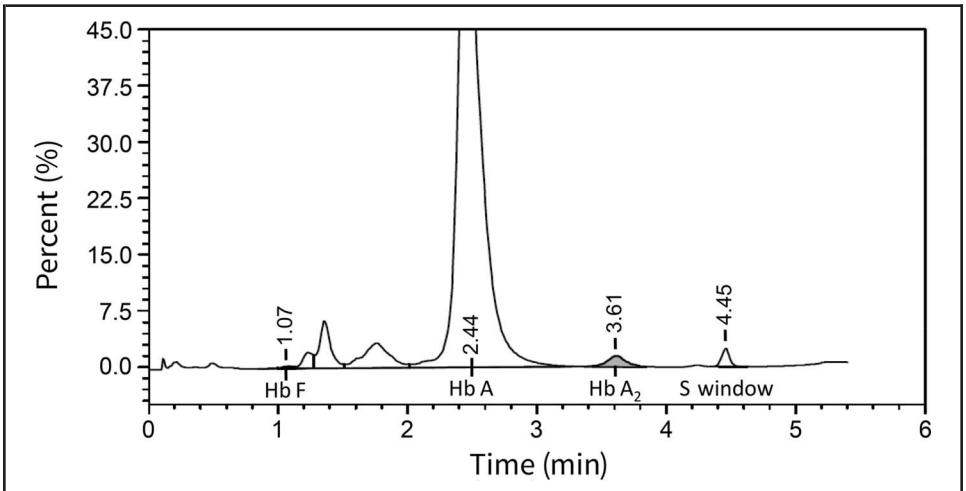

Fig. 1. Hemoglobin profile for the pregnant patient determined with the Bio-Rad Variant II HPLC β-thalassemia assay.

Questions

1. What are the most frequent Hb variants seen on electrophoresis in adults?
2. Who should be screened for hemoglobinopathies during pregnancy?
3. What makes the small peak in the S region unlikely to be Hb S?

The answers are below.

Answers

Adult erythrocytes contain a majority of Hb A (97%), small fractions of Hb A_2 (2.5%–3.8%), and undetectable Hb F (<1%) *(2)*. ACOG recommends high-risk hemoglobinopathy pregnancy screening for ethnic groups with African, Southeast Asian, and Mediterranean ancestry *(1)*. Hb A_2' (delta 16 Gly→Arg) is a hematologically silent Hb A_2 variant that has been reported in 1%–2% of African Americans *(3, 4)*. Small S-region peaks found by HPLC should be confirmed with isoelectric focusing to determine the presence of Hb A_2' *(4)*.

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[3] Nonstandard abbreviations: Hb, hemoglobin; ACOG, American College of Obstetricians and Gynecologists.

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analysis and interpretation of data; (b) drafting or revising the article for intellectual content; and (c) final approval of the published article.

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