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Thesis Abstract

Electrophoretic and chromatographic profile for “S-like” hemoglobin (Perfil eletroforético e cromatográfico das hemoglobinas “S-like”)

Luciana de Souza Ondei

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Hemoglobin variants originate mainly by simple amino acid substitutions, the result of nucleotide sequence changes. Recently, the number of known abnormal hemoglobins has increased due to improvement in analysis methodologies; however, many laboratories are not prepared to correctly identify mutants. Hb S is a very well-characterized hemoglobin variant that varies in prevalence in different regions of Brazil. However, there is a type of Hb that presents electrophoretic migration in alkaline pH similar to Hb S, named S-like Hb, which can be incorrectly diagnosed; therefore, its frequency is underestimated. We obtained reference ranges for Hb S by HPLC, and we examined the electrophoretic and chromatographic profiles of S-like Hb. Hb Hasharon, Hb D-Los Angeles, Hb Korle-Bu, Hb Lepore, Hb D-Iran, Hb G-like, Hb Queens, Hb Montgomery, and Hb Q-India were found. Cases of association between two beta chain mutants were also found. Electrophoresis in alkaline and acid pH was utilized to initially screen these Hb variants, and globin chain electrophoresis at both high and low pH was performed to identify the globin chain mutant. Chromatographic analysis permitted the identification of the hemoglobin variant and also facilitated the quantification of these variants. Therefore, an association of classical laboratory diagnostic methodologies is fundamental for the correct identification of suspect Hb variants. The S and S-like hemoglobin profiles determined in this study will help in the diagnosis of these variants in health care services.

Key words: Hemoglobin variants, Laboratory diagnosis, Electrophoresis, HPLC

