Correlation between some discrimination functions and hemoglobin E

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Abstract

The most widely used discriminant functions and red cell indicies for differential diagnosis of thalassemia traits from iron deficiency anemia were evaluated for their abilities to identify HbE-containing blood samples. The functions were as follows: F1 = 0.01 x MCH x (MCV)^2 ; F2 = RDW x MCH x (MCV)^2 / Hb x 100; F3 = MCV/RBC; and F4 = MCH/RBC. Other red cell parameters including RDW, hemoglobin content, mean cell volume, mean cell hemoglobin as well as red cell counts, were also evaluated to distinguish HbE from the normal population. Hemoglobin electrophoresis was used as a confirmatory test. The results showed that F1, F2 and F3 as well as other red cell parameters of HbE-containing samples were different from those of HbA2A-containing red cells although there was no statistical significance. However, F4 and MCHC showed no difference between the two groups. It can be concluded from the present study that identification of hemoglobin E especially the heterozygous form by using parameters from an electronic cell counter is not easy. Discriminant functions and red cell indicies might be used as an initial diagnosis. But confirmation is needed in all cases. Applying the MCV of 80 fl will miss 5 per cent of hemoglobin E carrier but will not miss the homozygous form.

Keywords: Discriminant Function; HbE; Hematologic Parameters

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