

Sickle cells in the peripheral blood film. Specificity and sensitivity of diagnosis of homozygous sickle cell disease in Kenya

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Abstract:

The final diagnosis of sickle cell disease (SCD) is established by haemoglobin (Hb) electrophoresis. The test, however, is expensive and absent in most hospitals in Kenya. We studied sensitivity, specificity and cost-effectiveness of the peripheral blood film (PBF) in diagnosing sickle cell anaemia (SCA), the most common type of sickle cell disease (SCD) in Kenya. The PBF can be done even in dispensaries. The study was performed in SCA endemic western Kenya in 767 subjects during 12 months. Hb level, WBC count, PBF, sickle cell test (SCT) and cellulose acetate paper electrophoresis (CAPE) were performed. In the PBF, presence of sickle cells was pathognomonic for SCA. SCA was found in 21, sickle cell trait in 120, and normal genotype in 616 subjects. Sensitivity of the PBF versus SCT and CAPE to detect SCA was 76% with a specificity of 99.7%. The PBF was cheaper than both methods by 31.1%