

Possible Application of Sickling Test in Haemoglobinopathy Screening of Sri Lanka

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The national screening programme for thalassaemia in Sri Lanka is currently using Full blood count (FBC) with red cell indices as the technique to identify haemoglobinopathies. This approach is likely to miss sickle haemoglobin (Hb-S) as it is well known that Hb-S is not associated with hypochromic microcytosis. Sickling test is a low cost microscopic screening test which detects sickle cell by its characteristic appearance. Therefore, the present study was undertaken to assess the performance of sickling test in identifying Hb-S among relatively high risk population in Hambantota district. A total of 581 school children (grade 11) were selected randomly from 5 schools in Hambantota district. 2 ml of EDTA blood sample was collected from each participant after obtaining informed assent and consent. Screening panel comprises with sickling test by sodium metabisulphite method, one tube osmotic fragility test, dichlorophenol indophenol test (DCIP), FBC and Zinc protoporphyrin test (ZPP). Haemoglobinphenotyping of each sample was confirmed by capillary electrophoresis technique. Four students out of 581 had sickle trait. Three other types of haemoglobinopathies were detected including β -thalassaemia trait (n=17), haemoglobin D trait (n=2) and haemoglobin E trait (n=1). 8% (n=44) had iron deficiency. All 4 cases with sickle trait were positive for sickling test and all other cases were negative. None of the Hb-S case demonstrated hypochromic microcytosis in FBC. The average time taken for red cells with Hb-S to assume the characteristic sickle shape was 28 minutes and 45 seconds. Sickling test demonstrated 100 % sensitivity and 100 % specificity in identifying sickle trait. Our results indicate depending solely on haemoglobin level and red cell indices is inappropriate since all of the sickle trait individuals would have been missed if sickling test was not done. Hence, the adaptation of sickling test can be recommended along with the Full Blood Count test when screening individuals for haemoglobinopathies in Sri Lanka.

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