

Abstract

Research Title : Evaluate to accuracy of immunochromatographic method

(GPO α THAL IC strip test) for α -Thalassemia carrier diagnosis

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Objective: 1) To screening for alpha thalassemia-1 carriers among pregnant women and spouses by immunochromatographic, IC strip test and one tube osmotic fragility test (OF) and then, confirm thalassemia and abnormal hemoglobin carriers byHb typing (high performance liquid chromatography, HPLC) and using multiplex PCR for diagnosis of alpha-thalassemia 1 as a gold standard. 2) To evaluate accuracy of both screening methods.

Material and Method: Asymptomatic pregnant women and spousesattending the antenatal care clinic were recruited (n = 414). Their blood samples were taken for screened by OF (KKU-OF) and IC Strip Test (GPO α THAL IC strip test)in predicting alpha-thalassemia-1 carriers, and separately sent to Hb typing (HPLC) for thalassemia and abnormal Hb carriers and to multiplex PCR for alpha thalassemia-1 carriers (Southeast Asian deletion, SEA and Thai deletion) diagnosis as a gold standard.

Results: Four hundred fourteen pregnant women and spouses were recruited into the present study. Positives for alpha thalassemia were 27 cases, includingalpha thalassemia-1 carriers, SEA type, alpha thalassemia-1 carriers, Thai deletion type, Hb H and Hb CS, which were 18, 2, 3and 2 cases, respectively. The sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and accuracy of IC strip test were 92.6%, 95.1%, 56.8%, 99.4% and 94.9%, respectively, which were higher than OF test (55.5%, 92.2%, 33.3%, 96.7% and89.8%, respectively).

Conclusion: The present study was evidence for accuracy of IC strip test rather than OF test, however, IC strip test can not using replace PCR as confirmatory test. Due to its simplicity, convenience to use, low cost, less-time consuming, clear interpretation and no need for either equipment or expensive laboratories, IC strip test may probably be very helpful in a massive thalassemia screening program.

Keyword: thalassemia, immunochromatographic strip, thalassemia screening test, thalassemia carrier