ORIGINAL ARTICLE

Combined One-Tube Osmotic Fragility (OF) Test and Dichlorophenol-indolphenol (DCIP) Test Screening for Hemoglobin Disorders, an Experience in 213 Thai Pregnant Women

V. WIWANITKIT, J. SUWANSAKSRI, N. PARITPOKEE

1Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
2Department of Clinical Chemistry, Faculty of Allied Health Science, Chulalongkorn University, Bangkok, Thailand

SUMMARY

Objective: Hemoglobin disorders are an important health problem in Thailand. Therefore, screening tests for abnormal genotypes offer an effective method for coping with this problem. This study has been designed to study basic screening tests for inherited hemoglobin disorders in Thai pregnant women. Methods: This study was designed as a diagnostic test. EDTA blood specimens from 213 pregnant women were used in this study. The screening methods studied were the one-tube osmotic fragility (OF) test and the dichlorophenol-indolphenol (DCIP) test. The standard method used in this study was hemoglobin typing applying the cellulose acetate hemoglobin electrophoresis method. Diagnostic properties such as sensitivity, specificity and predictive value were used for data analysis. Results: The results obtained from this study demonstrated the sensitivity, specificity, positive and negative predictive value for Hb E disorders screened by the DCIP test to be 100%, 97.2%, 94.4% and 100%, respectively. For beta thalassemia disorder screened by the OF test, the sensitivity, specificity, positive and negative predictive value were 100%, 83.7%, 10.5% and 100%, respectively. Evaluation for combining both methods as screening tools for all hemoglobin disorders revealed a sensitivity, specificity, positive and negative predictive value of 100%, 97.1%, 94.9% and 100%, respectively. Conclusion: The combination of both the OF and the DCIP test as a screening tool for hemoglobin disorders in pregnant women is an effective method and should be used in the antenatal clinic. (Clin. Lab. 2002;48:525-528)