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| Thesis Title | SCREENING FOR THE CARRIERS OF THALASSEMIA AND ABNORMAL HEMOGLOBINS |
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ABSTRACT

Thalassenias and abnormal hemoglobins are very common in Thailand. Prevention and control of the thalassenic and related diseases can partly be performed through a screening program which will be able to identify the affected and heterozygous individuals. This program will require rapid, economic, and reliable laboratory methods.

In this study, a screening process has been proposed to detect various forms of thalassenia and abnormal hemoglobins which are observed in Thailand. The screening process was consisted of the red cell osmotic

fragility screening test, the dichlorophenolindophenol (DCIP) precipitation test, and the detection of α -thalassemia 1 by anti- ζ globin chain antibody. Sensitivity and specificity of the screening process were compared to the standard methods and found to have their values of 99.2 % and 94.1 %, respectively. The false positive was 3.8 % and the false negative was only 0.3 %. The screening process was also used to study the prevalences of hemoglobinopathies in a group of 300 pregnant women and the results were later confirmed by the standard techniques. A remarkable increment of the Hb E prevalence in Bangkok, from the previously noted 13% to about 27 %, was observed. This is most likely caused by a large recent migration of people from northeastern Thailand to Bangkok.

The first two screening tests are simple, inexpensive and rapid, and do not require sophisticated apparatuses. Whereas the detection of α -thalassemia 1 by anti- ζ globin chain antibody is sensitive and specific, it needs some equipment and seems to be too complicated to be used generally.