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LETTER TO THE EDITOR

Using of osmotic fragility (OF) and dichlorophenol-indolephenol (DCIP) tests screening for antenatal clinic: appraisal of usefulnessof the program in rural Thai communities

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Dear Editor

I would like to draw your readers' attention to an economical and effective screening test for endemic hemoglobin disorders in rural communities.

In Thailand, a high prevalence of hemoglobin disorders, both carrier (heterozygote) and disease (homozygote) forms, has been reported[1-3]. At present, 5 million Thai people suffer from the homozygote form. Of these 12 000 belong to the neonatal group of approximately 1.2% of newborns annually. High endemicity of these diseases has been reported in the far northeastern rural region of the country[1–3].

Heterozygotes of hemoglobin disorders are microcytic, minimally anemic and asymptomatic; however, homozygotes are clinically anemic.

This problem affects not only public health but also the economy of the country, and carrier detection, genetic counseling and prenatal diagnosis should be encouraged. However, the standard tests of hemoglobin electrophoresis and molecular diagnosis are expensive and generally not available in rural areas. At present, screening pregnant carriers is under discussion among providers of antenatal care in Thailand. There have been several trials of the many screening methods among pregnant Thais and the efficient screening properties of the combined method (osmotic fragility [OF] and dichlorophenol-indolephenol [DCIP] tests) has been established[4]. A Thai national policy for local rural hospitals to use the combined screening method was launched in 2001.

A summary of the usefulness of the program in rural Thai communities is provided. A search for recent reports concerning the use of OF and DCIP tests for antenatal clinic screening in rural communities was performed by literature search of PubMed and the Thai Index Medicus. Four reports were found (Table 1)[5-8]. In all, 5158 subjects were screened and 1299 cases (25.2%) of the disorder were detected. The high prevalence of the disorder confirms the importance of screening. The reported sensitivity and specificity of the combined tests are 100% and 97%, respectively[4].

The estimated cost for each combined test is approximately 55 baht (US$1 = 40 baht): therefore, the estimated total cost for the screening was approximately 283 690 baht, and the estimated cost for detection of individual cases of the disorder was approximately 218.4 baht. Based on this evidence, the combined screening test is very effective and cost-effective for detecting hemoglobin disorders in rural communities. It can be recommended for use in any setting with similar problems of endemic hemoglobin disorders.

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Table 1: Reports on the using of osmotic fragility (OF) and dichlorophenol-indolephenol (DCIP) tests screening for antenatal clinic in rural communities

Authors	No. screened	No. cases detected
Pansatiankul et al, 2003[5]	256	56
Charoenkul et al, 2004[6]	3739	931
Wanichagoon et al, 2002[7]	300	98
Sangkitporn et al, 2004[8]	863	214

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