

COMMENTARY

Screening for Cervical Cancer - Which Common Technique is the Most Cost-effective Choice?

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Abstract

Screening is the basic practice in cancer prevention for cervical cancer. In the gynecology field, there are several alternative techniques for screening for pre-cancerous lesions for cervical cancer, including the Pap smear, visual inspection with acetic acid (VIA), human papilloma virus (HPV) DNA testing and combined Pap smear and VIA. In this work, the author focused on cost effectiveness and puts forward an argument that the VIA is the most preferable choice on this basis.

Key Words: Women's health - cancer cervix - screening - cost effectiveness

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Introduction- Cervical Cancer Situation

Cervical cancer is one of the most problematic malignant affecting millions of world population. A great number of death cases are reported from all around the world each year. In many developing countries, cervical cancer is the leading cause of death. To early detect cervical cancer is the best preventive way (Frieden et al., 2008; Kim et al., 2008; Ronco and Giorgi Rossi, 2008; Waxman, 2008; Blair and Casas, 2009; Hughes, 2009; Park and Soslow, 2009; Teitelman et al., 2009).

In general practice, screening for cervical cancer is basic practice in gynecology. The most basic method is the Pap smear which is a classical cytological study. Recently, some new techniques are proposed. These include visual interpretation with acetic acid (VIA) (Gaffikin et al., 2003; Chumworathayi et al., 2006) and human papilloma virus (HPV) DNA testing (Grce and Davies, 2008). VIA is based on histochemical reaction and this technique also allow prompt treatment on diagnosis. HPV DNA testing is a molecular based technique based on the fact that HPC is the pre-cancerous infection and can lead to cervical cancer. Also, there combination between Pap smear and VIA is also newly proposed as the newest alternative choice that was proved in a recent study in developing countries.

It can be seen that each alternative choice has its usefulness and limitations. Difference in diagnostic property for screening purpose is also observed. Here, the author assesses the cost effectiveness of each mentioned alternative technique for screening for cervical cancer based on scenario of Thailand, a developing country in Asia with a high prevalence of cervical cancer.

Cost-Effectiveness

For the present medical economics study, the costs of each alternative technique for screening for cervical cancer in this study (Pap smear, VIA, HPV DNA testing and combined Pap smear and VIA) were obtained from a reference laboratory in Thailand (Special Laboratory, Bangkok) and presented in baht (1 US dollar = 30 baht). The effectiveness in this study is defined as sensitivity for screening and is referred to a previous publication on this topic (The Royal Thai College of Obstetricians and Gynecologists, 2009). The value of reported sensitivity for each alternative node presenting in percentage was used as effectiveness in this work. The cost effectiveness of each alternative choice was finally calculated based on calculation for specific cost per effectiveness of that alternative choice. The inverse cost effectiveness in the work is assigned as the unit cost per unit effectiveness and can be simply calculated as cost divided by effectiveness of that alternative node. According to this approach, it can be shown that the cost of HPV DNA testing is the highest and that of VIA is the lowest (Table 1). Accordingly, given the similar values for effectiveness, it can be seen that the VIA is the most preferable alternative

Table 1. Cost Effectiveness Analysis for Alternative Choices for Screening for Cervical Cancer

Alternative	Cost (baht)	Effectiveness (%)	Inverse Cost Effectiveness
Pap smear	750	61.0	12.3
VIA	270	72.5	3.7
HPV DNA testing	2,340	83.0	28.2
Pap smear and VIA	1,020	88.5	11.5

technique. While VIA is not the alternative technique with the highest sensitivity, it is readily performed since it is not complicated. Although the recent study proposed that the combination of Pap smear and VIA alternative technique can give the best sensitivity (Gaffikin et al., 2009) it is still not the most proper technique for screening purpose based on cost effectiveness analysis. The author suggests using VIA as screening technique for pre cancerous lesion of cervical cancer in other developing countries with similar high prevalence of cervical cancer and similar economical status as Thailand. While no account was taken of possible overdiagnosis in the present commentary, and costs arising from overdiagnosis, the possibility of using a single visit approach with VIA plus cryotherapy (Chumworathayi et al., 2006) means that the associated costs might be less than with follow-up procedures necessary after positive results with other approaches.

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