

The Management of Pre-invasive Stage of Cervical Disease in a Low-Resource Setting

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Cervical cancer is one of the commonest cancers in women. It is also the most preventable cancer. Numerous population based studies have shown that the development of a population based screening program can significantly reduce the incidence of and death rate from cervical cancer. However, it is expensive and requires a large and complex infrastructure to run such a program.

As the disease goes through a prolonged pre-invasive phase (cervical intraepithelial neoplasia, CIN) there is ample time in which to treat this phase. Furthermore, this treatment only involves the destruction of the surface epithelium of the cervix.

There is ample evidence that those women who have undergone cervical diathermy, for whatever reason, have a lower subsequent incidence of cervical cancer.

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In a low resource setting there is a place for trialling the widespread use of cervical cryotherapy to treat women without prior Pap smear screening and thus demonstrate that on a population basis this should reduce the incidence of cervical cancer.

This is an extremely important topic. Cervical cancer is one of the commonest causes of cancer related deaths amongst women. While this is the most preventable cancer and there is a lot of research to demonstrate this fact, the cost of population screening is not cheap and its absence is most noticeable in low resource regions.

Examination of the FIGO Annual Report on the Results of Treatment in Gynaecological Cancer, 24th volume covering 1993-1995 shows some interesting trends with respect to the stage distribution between countries:

The stage distribution in Australia, Sweden and USA shows Stage 1 cervical cancer to be the most common stage at presentation compared with Stage 2 in Thailand. It is interesting that examination of the stage distribution in Aboriginal communities and remote and isolated communities within Australia is similar to the stage distribution seen in Thailand. This

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results from the lack of screening in these regions. It is evident that the introduction of a population based screening program results in the diagnosis of cervical cancer at an earlier stage and therefore the institution of more effective and more cost effective treatment.

The cost effectiveness of population based cervical screening is something that interests our health economists and politicians a great deal because of the cost involved in running such a program. It is realised that nationally Australia screens about 62% of our at-risk women. However it is estimated that it would cost almost as much to screen the majority of the remaining 38% as it did to screen the initial 62%. This problem is one that follows the law of diminishing returns. This law applies to many things in life. When one is trying to reach an end point the initial investment is only moderate, however, the closer one gets to the end point the greater needs to be the input to achieve the same unit increase. This principle is

	Stage 1	Stage 2	Stage 3	Stage 4
Australia	57.8	27.7	9.6	4.4
Thailand	21.2	45.1	29.4	3.9
Sweden	53.3	22.3	21.8	2.5
USA	48.8	10.9	15.8	5.2

something we teach our students when it comes to sitting examination papers. For example, let us assume that a student has to sit a three-hour written examination with six questions to answer. How should we advise this student? What should they do when they have been writing for half an hour on a question and they know that there is more they can write? Should they continue to write or should they start a new question? The answer is to start a new question! Let us assume that at the end of 30 minutes writing they have scored 14 or 15 out of 20. If they write for another 15 minutes they may raise their score to 15 or 16 out of 20, i.e., another 1 or 2 marks. However, if they start on a new question, at the end of 15 minutes they may have scored a further 8 or 9 marks. The same principle applies to population based screening. It is therefore very important that whatever is used to reduce the incidence of cervical cancer it needs to be cost-effective.

While it is very interesting to look at the scientific research in Australia, England and the United States it must be remembered that these are rich first world countries and their programs may not be transferable directly to Thailand which is not a first world country. The running of a first world population based screening program involves the education of the population for the need to be screened, the availability of personnel to take the smears, the infrastructure to transport the smears to cytology laboratories, the establishment of properly staffed and trained cytology laboratories, the development of standardised protocols for reporting, mechanisms for recalling patients with abnormal results, colposcopic assessment and treatment and finally follow-up protocols. Even in countries such as England who have no comparable remote communities, they have screening restrictions. In Queensland, Australia we have spent millions of dollars trying, largely unsuccessfully, to increase screening rates by a few percent in our remote communities. I would suggest that this is not the most appropriate mechanism for Thailand to use to tackle the problem of cervical cancer.

I would like to propose a totally different approach to this problem. Cervical cancer goes through a pre-invasive phase that lasts up to ten years. The pre-invasive phase, CIN, starts in the transformation zone of the cervix; the area where squamous metaplasia is occurring. I would suggest that the larger the potential transformation zone the longer it will take to complete its transformation from glandular to squamous epithelium and therefore the

longer time that is available for the carcinogen, HPV, to be introduced. I would further suggest that if that process, which would normally take decades to complete, could be shortened to a matter of weeks, the likelihood that CIN would develop would be decreased.

A study from Finland⁽¹⁾ suggested that this might be true. This study looked at the subsequent incidence of CIN & cervical cancer in women who had had cervical cautery compared with those who had not had cervical cautery. This study suggested that women who had not had cervical electrocoagulation had a sixfold increased risk for invasive cancer compared to those who had been subjected to electrocoagulation. Furthermore, an American study⁽²⁾ suggested a similar trend among 13,897 patients attending a private gynaecologic practice.

I would therefore propose a regional study based on the above hypothesis and study from Finland. The target population should be in the 20 to 35 year old age group when there is a relatively low incidence of invasive cervical cancer and most disease present should be in a pre-invasive phase. All women with a visible cervical erosion would be treated by cryocautery. This can be done without the need for hospitalisation or anaesthetic. It would I believe have a dual effect. Firstly, it would significantly shorten the time period over which squamous metaplasia is happening thus reducing the time frame for carcinogenic introduction and effect, and secondly, it would mean that those women with CIN in their 20's would have it treated, albeit without a diagnosis ever being made.

While this approach might not be acceptable in an Australian urban community it may have merit in those communities where conventional screening is not working or is cost prohibitive.

If this approach worked, this somewhat novel approach would also have the effect of making Thailand the leader in alternative approaches to cervical cancer control in rural/low resourced settings.

References

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