Screening for cervical neoplasia in Mamelodi — lessons from an unscreened population

M. J. Heystek, E. T. M. de Jonge, H. P. Meyer, B. G. Lindeque

Aim. To determine the prevalence of abnormal cervical cytological findings in an unscreened population; to assess patients' awareness of cervical cancer and the importance of early diagnosis; and to evaluate the accuracy of visual inspection of the cervix as a screening method for asymptomatic cervical cancer.

Study structure. Descriptive.

Setting. Mamelodi Hospital, a community day hospital east of Pretoria, serving a black urbanised population that had never been exposed to a routine cervical cytological screening programme.

Methods. One thousand and ninety-five women of reproductive age, who presented with a non-gynaecological complaint, were offered cervical cytological testing and were asked to complete a questionnaire. Visual appreciation of the cervical condition was noted and compared with the cytology report.

Results. The prevalence of abnormal cervical cytological findings (low- and high-grade squamous cervical intra-epithelial neoplasia (CIN), excluding human papillomavirus-induced cell changes only) was 54/1 000.

Conclusion. This study shows a high prevalence of abnormal cervical cytological findings in a population ignorant about cervical cancer. Recommendations on how to improve this situation are made.

The incidence of cervical carcinoma, especially among the black population of South Africa, is high, and is regarded by both medical1-2 and political3 authorities as a major health problem. Cervical carcinoma is the most important cancer-related cause of death in black women and mortality rates are increasing.4 According to the 1988 National Cancer Registry Annual Statistical Report, black women have at least a 1 in 21 lifetime risk of contracting cervical carcinoma.5 An incidence rate of 39.28/100 000, according to this report, is 2 - 4 times higher than in other developing countries.

Mamelodi is a township east of Pretoria with a rapidly growing population. Cervical cytology as a screening test is offered only at the antenatal clinics. Available data show that the yield of cervical screening in obstetric services is low, for a number of reasons: low smear adequacy, relative low age-related risk for cervical neoplasia and poor postpartum treatment rate.6 The World Health Organisation recommends that cervical screening be directed at women aged 35 years and older in order to be cost-effective. The age distribution of patients in these clinics, however, peaks in the 20-29 year group, with only 9.3% of patients over the age of 35 (unpublished data from a study by the authors). It is therefore likely that this population is screened inappropriately, with little impact on the incidence of cervical cancer.

The aim of the study was: (i) to determine the prevalence of abnormal cervical cytology; (ii) to assess patients' awareness of cancer and the importance of early diagnosis; and (iii) to see how effective naked-eye inspection was as a screening method for asymptomatic cancer of the cervix. The findings, which may be of importance for future strategic planning of cervical screening in South Africa, are discussed.

Patients and methods

All the women who presented with a non-gynaecological complaint at Mamelodi Hospital between April and October 1993 were offered cervical cytological testing. Except for minors (< 18 years of age), there was no age restriction. Informed consent was obtained for the completion of a questionnaire that was used to ascertain some patient characteristics related to risk factors for cervical cancer. The questionnaire included details on age, parity, type of contraception, age at first intercourse, number of sexual partners and previous cervical smears. Knowledge of cervical cytological testing and cancer was also tested by the questionnaire. Patients' knowledge about cervical cytological testing was graded as follows: good, when the patient knew exactly the nature and purpose of a cervical smear; average, when the term 'cervical smear' sounded familiar, but the patient was not sure about its nature or purpose; and weak, when the patient was totally ignorant. Patients' knowledge of cancer was graded similarly. All the questionnaires were conducted by one of the authors (H.M.J.), in some cases through an interpreter. At the time of the gynaecological inspection, with a Cuscoe speculum, abnormalities of the cervix were recorded as normal, infective or suspicious of malignancy. Cervical smears, taken with an Aylesbury spatula, were examined by the Cytology Laboratory of the Department of Obstetrics and Gynaecology, University of Pretoria. The Bethesda system7 of reporting was used. Patients with abnormal cytological findings (defined as low- and high-grade squamous intra-epithelial lesions, excluding human papillomavirus (HPV)-induced cell changes only) were recalled and referred for further management.
Results

A total of 1,121 patients were entered in the study. None of the patients approached refused to participate. Only the data obtained from 1,095 patients were analysed, as data were incomplete in 26 cases. The mean age was 31 years and mean parity 1.9. The results of the questionnaire are summarised in Table I. The prevalence of abnormal cervical cytological findings (pre-invasive and invasive disease) was 54/1,000, with 34 (31 per 1,000) cases of low-grade cervical intra-epithelial neoplasia (CIN), 20 (18.3 per 1,000) of high-grade CIN and 5 (4.5 per 1,000) infiltrating lesions. The mean age of patients with low-grade CIN was 27.1 years, those with high-grade CIN 35.3 years and 52.6 years for the patients with infiltrating cervical carcinoma. Naked-eye inspection of the cervix indicated that it was normal in 918 (87.8%) cases; in 147 (13.3%) cases the clinical diagnosis of cervicitis was made and in 30 (2.7%) cases there was suspicion of cervical malignancy. The value of naked-eye inspection of the cervix compared with cytological screening is shown in Table II. None of the 54 CIN lesions was suspected clinically. Four out of the 5 patients with infiltrating cervical carcinoma had a macroscopically abnormal cervix. Only the 1 patient with adenocarcinoma of the cervix had a normal cervix on inspection.

Table I. Patient profile of the study group (N = 1,095)

<table>
<thead>
<tr>
<th>Penarche (mean) (yrs)</th>
<th>17.23</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of sexual partners (mean)</td>
<td>3.05</td>
</tr>
<tr>
<td>Contraception</td>
<td>677 (61.8%)</td>
</tr>
<tr>
<td>Type</td>
<td>Non-barrier 674 (99.6%), Barrier 3 (0.4%)</td>
</tr>
<tr>
<td>Previous cervical testing</td>
<td>132 (12.1%)</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Cervical cytological testing</td>
</tr>
<tr>
<td>Good</td>
<td>25 (2.3%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>54 (4.9%)</td>
</tr>
<tr>
<td>Ignorant</td>
<td>1,016 (92.8%)</td>
</tr>
<tr>
<td>Cancer</td>
<td>Good 24 (2.2%), Moderate 93 (8.5%), Ignorant 978 (89.3%)</td>
</tr>
</tbody>
</table>

Table II. Comparison between naked-eye inspection of the cervix and cervical cytology

<table>
<thead>
<tr>
<th>Cytology</th>
<th>Non-suspicious</th>
<th>Suspicious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>1,011</td>
<td>26</td>
</tr>
<tr>
<td>Positive</td>
<td>55</td>
<td>4*</td>
</tr>
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</table>

*All were invasive lesions.

Discussion

Although this was a hospital-based study, no specific high-risk group was targeted. The 54/1,000 prevalence of abnormal cervical cytological findings in this asymptomatic population is high. Twenty years ago, this prevalence in a non-gynaecological inpatient population at Tygerberg Hospital was only 9.3/1,000. A similar situation currently exists in Namibia where the prevalence of abnormal cervical cytological findings (excluding HPV cell changes only) in an unselected, unscreened population was 77/1,000. These prevalences are comparable with those found in populations designated as high-risk: 22/1,000 in mainly black women attending family-planning clinics in Johannesburg, 41/1,000 in women over 40 years of age attending well-women care clinics in Soweto. No such data are available for other regions in sub-Saharan Africa, although the incidence of cervical cancer in this region is high in general. We thus conclude that black urbanised women in South Africa are at high risk of cervical carcinoma, and should therefore be screened in a population-based screening programme.

Risk factors for cervical carcinoma are well known, and in that respect this population's patient profile (Table I) is a cause for concern: early age of penarche (age at first intercourse) (17.2 years), high number of sexual partners (1 - 20; mean 3) and reluctance to use barrier contraception.

The majority of patients (98%) were found to be ignorant about cervical cancer and methods of early detection (Table I). This makes interpretation of a 12.1% rate of previous cervical testing found in this population difficult indeed. In spite of many recommendations made in the past to improve the population's knowledge through education, no progress has been made in this regard. It was hoped that, along with the AIDS information campaign launched in this country, efforts would have been made to institute educational programmes on cervical carcinoma and its prevention.

The WHO proposed a strategy of visual screening to detect asymptomatic cervical pathology. Researchers in India have shown that in asymptomatic patients, 40 - 60% of cancers could be detected by direct inspection in a non-advanced stage of disease (stage 0 - IIA) versus 71% detectable cytologically. Visual abnormalities became clinically apparent from the time the stage of carcinoma in situ was reached. In South Africa such a programme could indeed make an impact, as more than 50% of all cervical cancer patients admitted to the oncology units in this country have stage III and IV cancers with dismal outcome.

Mass routine visual screening, with referral of women with suspicious lesions for further evaluation, could increase the percentage of patients diagnosed in stage I several-fold. Despite the prevalence of suspicious-looking cervices was 2.7% (Table II), which is low compared with an expected rate of 10% in an asymptomatic population. In our study, the prevalence rate of suspicious-looking cervices was 2.7% (Table II), which is low compared with an expected rate of 10% in an asymptomatic population. This low prevalence in our study could well be explained by the fact that 'suspicious-looking' was interpreted as suspicious for malignancy, whereas in the other studies other less well-defined visual abnormalities were included, e.g. bleeding on touch. Although 80% of the cancers in the population could be detected, no high-grade CIN lesions were found. Refining of visual screening by coating the cervix with 4% acetic acid before evaluation could certainly improve the potential of visual screening to identify pre-invasive disease, especially high-grade CIN. In a study of 3,032 asymptomatic patients, Cronje et al. concluded that the acetic acid test, given its high sensitivity (64%) and low cost, was the ideal screening test in remote areas. Long intervals between the mean ages of patients with low-grade CIN (27.1 years), high-grade CIN (35.3 years) and infiltrating carcinoma (52.6 years) as shown in this study, give us many opportunities to detect a cancer at a curable stage or even earlier if routine mass visual screening is done at regular intervals.

Three-year mass cervical screening by means of cytology has been shown to reduce the probability of a
In conclusion, cervical neoplasia is prevalent in South Africa. Therefore, we urgently need a national, well-structured and affordable cervical disease mass screening policy. Before implementation, the results and feasibility of screening programmes using different techniques (interval cytology, naked-eye acetic acid visual screening test, cervicography) should be known. Better knowledge of cervical cancer and ways of prevention through intensification of media coverage, education at school and making use of each patient contact as an education opportunity, are absolutely essential in order to help get mass screening off the ground.

The authors wish to thank Mr F. De Boer, consultant cytopathologist, and his staff for their contribution.

REFERENCES


The seasonal incidence and nature of injuries in schoolboy cricketers

Richard A. Stretch

This study investigated the seasonal incidence and nature of injuries sustained by schoolboy cricketers. Questionnaire responses of 116 cricketers were obtained (59.2% of the sample). The overall seasonal incidence of injuries in all the players was 49.0%. The most common sites of injury were the back and trunk (33.3%), upper limbs (24.6%), and lower limbs (22.8%). The seasonal incidence of injuries in bowlers (47.4%) was found to be greater than in batsmen (29.8%) and fielders (22.8%), although not significantly so. The injuries occurred with equal frequency during matches (45.6%) and practices (47.4%), particularly during the early and later parts of the season; 29.8% of the injuries were recurrent injuries from the previous season. Of the total injuries sustained, 36.8% occurred during the same season. The pattern of injuries in the schoolboy cricketers was similar to that in the club and provincial cricketers. Although cricket injuries have not reached serious proportions, cognisance needs to be taken of these patterns so that the risks of injury can be reduced even further.


Cricket has traditionally been regarded as relatively injury-free, although it has been classified as having a 'moderate' injury risk. However, numerous case reports and studies on the incidence of injuries in adult cricketers indicate that injuries in cricket players are increasing rapidly. The main areas of concern are impact injuries to the head, face and fingers and injuries to the back. In addition to technical skill, the modern cricketer requires a high level of fitness, which makes him susceptible to overuse injuries as a result of repetitive training.

The dramatic increase in sports participation has resulted in many more 'adult-type' injuries in children. However, no studies of schoolboy cricket players have been conducted; specific data on the incidence and the nature of injuries incurred have come from case studies and studies assessing specific injuries. These studies have focused mainly on back injuries caused by fast bowling.

The high incidence of back injuries in young bowlers is not the result of a single aetiological factor, but rather of a combination of factors which may predispose these players to injuries. These include inadequate physical and physiological factors, postural defects, high physical

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