Abnormal cervical cytology requiring colposcopy among women under the age of 30 years in the Western Cape Province, South Africa

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Background. Although cervical cancer is the second most common cancer among women in South Africa, the Department of Health's current national screening policy only offers women a free cervical smear at 30, 40 and 50 years of age.
Methods. Data on cervical smears were obtained from the computerised records of the Cytopathology Laboratory at Groote Schuur Hospital (GHS), Cape Town, for the years 2009 and 2010. Total and age-specific prevalences of women who had undergone cervical smear screening were calculated.
Results. Of a total of 108 542 cervical smears processed at GHS, 21% were cervical smears taken from women under 30 years of age; 3 080 women were referred for colposcopy at GSH, and 19% of these women were under 30 years of age.
Conclusion. These results suggest that 'first-time' screening at 30 years could be too late for many young women with invasive or micro-invasive cancer.

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Cervical cancer is the second most common cancer among women in South Africa (SA). Recent figures show that the lifetime risk of developing invasive cervical cancer (ICC) is 1 in 31 for SA women. Approximately 60% of these women will die from this easily preventable disease.[1]

Until 1995, the official Department of National Health and Population Development cervical screening policy in SA was broadly consistent with the recommendations of working groups in developed countries. This policy advised screening at 3-yearly intervals from the time of sexual debut; however, it was argued that the healthcare resources involved in screening women at low risk could be better spent on a rational screening programme including only high-risk groups.[2]

The SA Department of Health (DoH)'s current national screening policy, introduced in 2001, offers women a free cervical smear at 30, 40 and 50 years of age. Screening programmes to identify pre-invasive lesions aim to reduce mortality and morbidity from cervical cancer. Through screening, precursor cervical lesions can be detected, treated and managed.[3]

The age at first sexual intercourse among SA women is on average 16.9 years.[4] Sexual intercourse puts women at risk for sexually transmitted infections (STIs) such as human papillomavirus (HPV) and human immunodeficiency virus (HIV). HPV infection is most common in young women between 18 and 30 years of age,[5] and alarmingly, approximately 21% of young SA women are infected with HPV.[1] HPV is recognised as being responsible for approximately 63% of ICCs.[1] Although HPV can be transient in younger healthy women, its transient nature is not obvious in currently disadvantaged women, who are more likely to suffer from chronic ill health and reduced immunity linked to poverty.[6] It is these currently disadvantaged women who are most in need of national healthcare services, yet HPV screening is not freely available in SA.

SA also has among the highest rates of HIV infection in the world. Approximately 10% of the population is known to be infected with HIV.[7] The highest infection rates are recorded among women in the 25 - 29-year age group (32.7%). HIV also increases the risk of infection with HPV, which has been directly linked to ICC.[8]

In SA the high prevalence of both HPV and HIV in the under-30s female population places them at greater risk for high-grade intraepithelial squamous lesions or ICC. Currently women who are limited to national healthcare services in SA are not invited for free cervical screening until the age of 30, despite concerns that women under 30 years of age may have high-grade lesions that could rapidly progress to ICC. This study examined the current incidence of precancerous lesions of the cervix in SA women under 30 years of age. These data are important to alert health policy makers to the occurrence of potentially fatal lesions in young women.

Methods

Participants

Entry of a diagnosis for each woman presenting with a high-grade squamous intraepithelial lesion or three consecutive low-grade squamous intraepithelial lesions automatically generates a letter of appointment for colposcopy.

Participants in this study were women between the ages of 12 and 85 years of age who had been issued with one of these letters referring them to the Colposcopy Unit at Groote Schuur Hospital (GSH), Cape Town, for assessment and appropriate clinical management. These women all resided in areas of the Western Cape Province that are served by the GSH Cytopathology Laboratory (National Health Laboratory Service (NHLS)).

Participants' ethnicity and HIV status were not recorded in this study. Ethnicity and the incidence of HIV infection are often unknown, as this information is not always supplied by the smear taker.

However, all women who present with HIV-positive test results and/or gynaecological symptoms are offered a conventional cervical smear.

Ethical considerations

This research was approved by the University of Cape Town Human Research Ethics Committee, which complies with the ethical standards for clinical research based on the Medical Research Council, International Convention on Harmonization Good Clinical Practice (ICH CGCP) and Declaration of Helsinki guidelines. The Head of the Department of Anatomical Pathology (which includes the Cytopathology Laboratory) also gave permission for this study. Patient names were not used in order to retain anonymity; laboratory numbers were recorded to identify individual cases.

Data collection and analysis

Data on cervical smears were obtained from DISA database computerised records at the GSH Cytopathology Laboratory for the years 2009 and 2010. This laboratory serves allocated territories of the Western Cape. Total and age-specific prevalence (frequency) of women who had undergone cervical smear screening were calculated. A 4th-year medical student, completing a supervised student internship, then examined these data to establish the number of women less than 30 years of age who had been referred for colposcopy. Percentages of the total number of women and absolute numbers of women per thousand referred for colposcopy were calculated to observe the incidence of significant findings on smears requiring colposcopy.

Colposcopy results were not collected at the time of the study, as its initial focus was to investigate the most recent incidence of colposcopy referrals (which would indicate a high risk of invasive lesions). Many of these women would not yet have attended colposcopy. Research shows that between 88% and 96% of women attending colposcopy are confirmed as having high-grade lesions or invasive cancer.[9,10]

Results for colposcopy are also the intellectual property of the Histopathology Laboratory, so additional ethical permission would be required. However, these results could possibly form the focus of future follow-up research.

Results

A total of 108 542 cervical smears were processed in the NHLS Cytopathology Laboratory at GSH over the study period. Of these, 23 317 (21.5%) were from women under 30 years of age (Fig. 1). During the period under review, 3 080 women were referred for colposcopy at GSH; of these, 577 (18.7%) were under 30 years of age (Fig. 2). Fig. 3 shows the actual age distribution of women attending colposcopies at GSH between 2009 and 2010. The incidence of significant findings on smears requiring colposcopy in women under 30 was 25 colposcopies per 1 000 smears; and in women 30 years and older was 28/1 000 smears.

Limitations

Lack of information on the incidence of HIV infection means that it was not known how many of the women under the age of 30 in this study were HIV-positive. However, as many women in SA do not know their HIV (or HPV) status, and therefore are not necessarily receiving treatment for HIV, they are not identified by public healthcare providers as qualifying for a smear test. Smears are usually only indicated in symptomatically suggestive patients (opportunistic screening) under 30 years of age. In our study, this may have reduced the number of smears taken and inflated incidence. The incidence of colposcopy in women 30 years and older may also have been diluted by the large age range of this sample. In future studies it may be preferable to get incidences for age groups with fixed age categories (10 - 19, 20 - 29, 30 - 39, etc.).

Discussion

Despite the above limitations, the fact that the high prevalence of HIV and HPV in the under-30s age group in SA increases the risk of ICC in young women cannot be ignored. Women are not always aware of their HIV and HPV status, and therefore will not necessarily attend clinics where they are offered cervical screening. In a study by Peltzer *et al.*[11] it was found that in a large nationally representative population-based HIV survey only 27.6% of participants had knowledge of their HIV status. Many HIV-positive women are therefore not receiving HIV treatment, or attending associated health screenings. Relying on the presence of mild symptoms to act as a catalyst for young women to attend screening also cannot be depended on, as many such symptoms are regarded as normal (such as 'spotting' between menstrual cycles or postcoital bleeding).

Most cervical cancers arise at the squamocolumnar junction, where coincident HPV infection occurs in foci of greatest metaplastic activity.[12,13] Similarly, a high risk of significant cervical squamous intraepithelial lesions has been reported in HIV-infected women.[8] HIV infection also intensifies the progression from precancerous lesion to ICC.

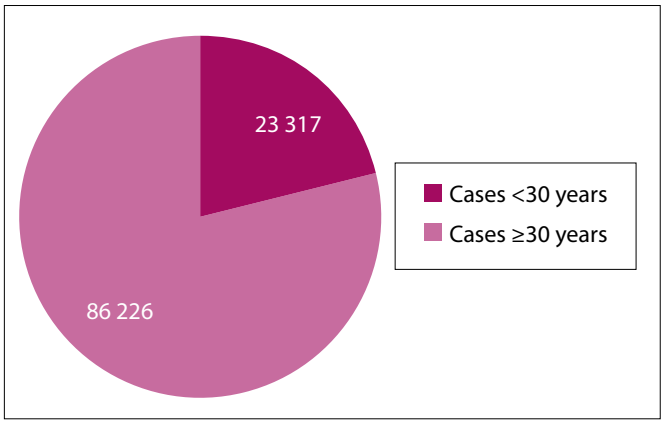

Fig. 1. Absolute numbers of smears in women under and over 30 years of age.

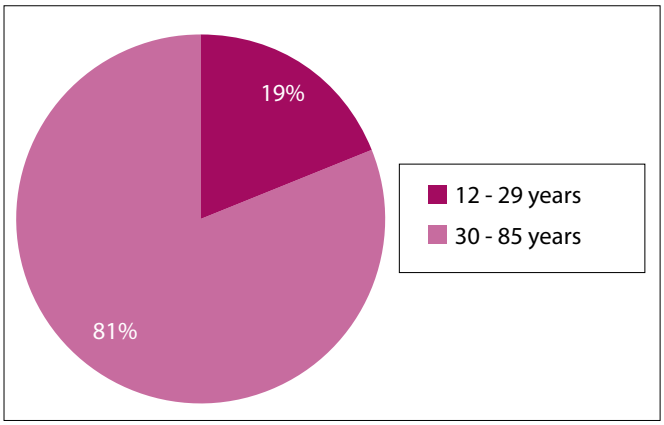

Fig. 2. Percentages of women under and over 30 years of age invited to undergo colposcopy.

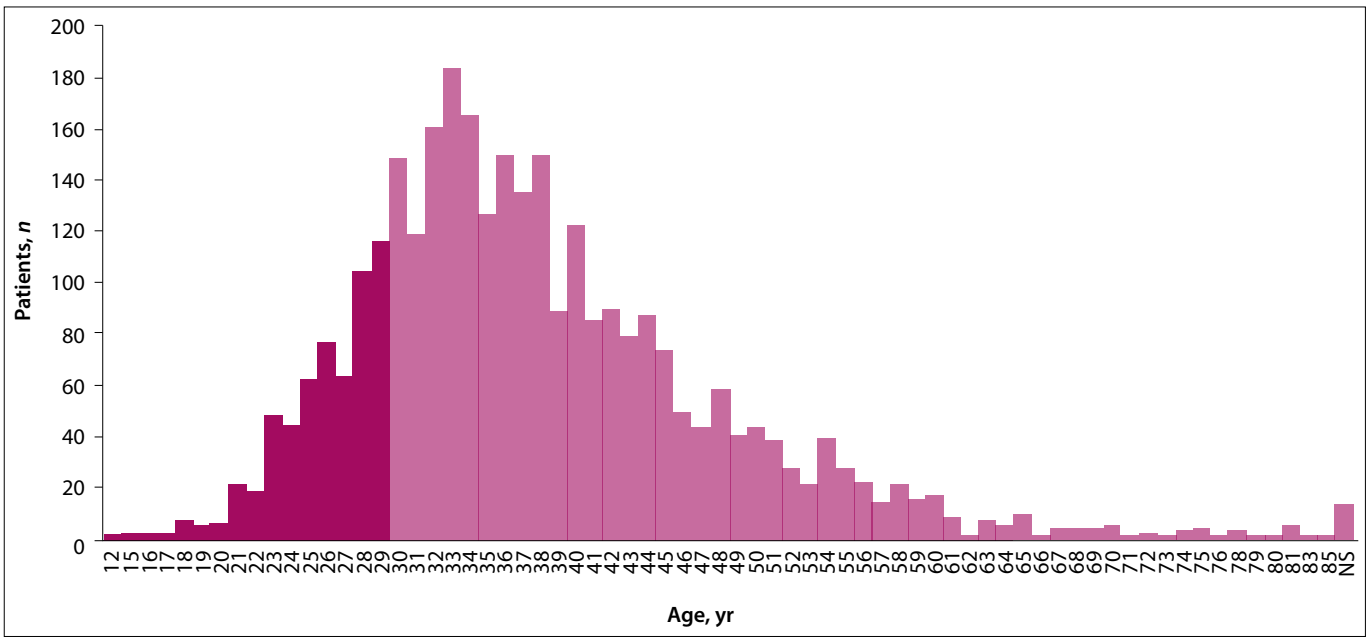

Fig. 3. Age distribution of women attending for colposcopies at GSH (2009 - 2010). (GSH = Groote Schuur Hospital; NS = not stated.)

It has been shown that a 3-year interval of successful cervical cytology, using cervical screening, can reduce morbidity and mortality due to cervical cancer by 60 - 90% in populations that have previously never undergone screening.[14] Report of an abnormal Pap smear result requires follow-up by colposcopic examination or a repeat smear. Biopsies of the abnormal areas on the surface epithelium of the cervix are used to confirm the cytological findings. In contrast to this relatively simple, inexpensive outpatient treatment, when lesions have progressed to ICC, treatment includes hospitalisation, radical hysterectomy, chemotherapy and/or radiation therapy.[15]

The more advanced the cancer, the more costly the treatment and the poorer the prognosis. The 5-year survival projections are 80 - 90% for women with stage I disease and 50 - 60% for women with stage II disease; for stage III and IV carcinomas, survival rates drop to <30% and 15%, respectively.[16]

SA is a country where health resources are limited. This was understandably one of the determining factors in the decision to change the DoH's current national screening policy in 2001 to offer women a free cervical smear only at 30, 40 and 50 years of age. However, with the high prevalence of HPV and HIV among young SA women, and the cost of ICC, both in resources and in human suffering, continued discussions on and further research into the actual economic and social impact of the current screening policy are imperative.

Conclusion

This was an exploratory study to establish the proportion of women under 30 years of age who are referred for colposcopy, and thereby possibly reignite discussions and research around the current relevant screening and healthcare policies.

Considering the SA context, our findings suggest that 'first-time' screening at 30 years could be too late for those who may already have invasive or microinvasive cancer. Currently, women in SA are not invited for free cervical screening until the age of 30 despite all the existing predisposing factors.

With the alarming rates of mortality and morbidity currently associated with cervical cancer and the overall economic and psychosocial impact of ICC, it is vital that the current provision of preventive healthcare from the time of sexual debut is reviewed.

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