The Influence Of Genital Tract Symptomatology On Genital Human Papilloma Virus

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Citation

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Abstract

Aim: To study the association between genital tract symptomatology and human papilloma virus (HPV) of the cervix.Method: The subjects were 450 randomly selected sexually active women attending the antenatal, postnatal, gynaecology and family planning clinics in the Department of Obstetrics and Gynaecology of the University of Maiduguri Teaching Hospital, Nigeria between April 2001 and May 2002. The Pap smear of these patients were examined microscopically for evidence of HPV Infection. Questionnaires assessing various genital tract symptomatology of the patients were administered.Result: Abnormal smears occurred in 245 (54.5%) of the patients screened. Forty eight women (10.7%) had HPV associated changes constituting 19.6% of all abnormal smears. Their ages ranged between 15 and 64 years, with a mean of 26±3 years. There was a statistically significant association between abnormal vaginal discharge, irregular menstruation, postmenopausal and postcoital bleeding and genital HPV infection. Conclusion: Women with abnormal vaginal discharge, irregular menstruation, postmenopausal and postcoital bleeding are at increased risk of acquiring infection of the cervix and should be the target in a sporadic or an organized cervical cancer screening programme without discriminating other sexually active women.

INTRODUCTION

As at year 2000, cervical carcinoma was responsible for 466,000 deaths per annum worldwide and is the leading cause of death in middle aged 34-35 years[1]. It was the most common malignancy among women in Nigeria and the rest of the sub-Saharan Africa with a very poor 5-year survival rate. [1-4]

In Benin, Nigeria, carcinoma of the cervix made up 74.6% of all cases of malignant gynaecological tumors, with stage IIb and above constituting 67.6% of the cases[2]. It accounted for 66.2% of all gynecological malignancies in Zaria Nigeria, with advanced carcinoma of the cervix, stage IIb and above, making up 88.7% of the cases[3]. In Kenya, 55% of women with cancer of the cervix presented with stage III disease and beyond[4].

In 1842, Rigoni- Stern formally hypothesized that cervical cancer had an infective sexually transmitted aetiology[5]. Many studies since then have confirmed the venereal nature of cervical cancer and identified other risk factors. The most exciting development has been the finding that infection with human papilloma virus (HPV) is casually associated with cervical cancer[6,7].The HPV has been shown to be a determinant of the natural history of cervical intraepithelial neoplasia (CIN). The progression to cervical cancer when HPV co-exists with CIN is about 21% but only 5.6% when CIN lesions occur alone[8].

Many studies have tried to show some kind of association between genital tract symptomatology and the risk of developing HPV and cervical cancer[9]. Such socio-demographic factors may be useful in risk scoring. This is important because risk scoring systems have the potential for assisting the targeting of screening resources, as broad risk targeting of all sexually active women is not a viable option for developing countries due to paucity of both human and financial resources. Even in the industrialized nations of the West, the need for more precise targeting of high risk groups in other to improve the efficiency of cervical cytology programmes and conserve funds have become a major issue[10].

The manifestations of HPV infection of the cervix may be

clinical or sub-clinical.

Sub-clinical HPV infections of the cervix may be diagnosed by colposcopy, viral and hybridization, polymerase chain reaction (PCR) amplification, histology or by characteristic HPV changes on Papanicolaou smear[9,11].The Papanicolaou smear for cervical cytology fulfils all the criteria for an ideal screening test. Not only is it cost effective, acceptable to most patients and adoptable to wide spread screenings, it is specific enough to detect HPV changes and subsequent progression to CIN resulting in decreased morbidity and mortality from invasive cervical cancer[12]. DNA hybridization and PCR amplification can detect productive and non- productive infection but appear to be of limited value in predicting the risk of developing CIN or invasive carcinoma[11]. Although cervical cytology, histology and colposcopy are less sensitive, they are capable of detecting significant changes pathological changes associated with productive HPV infection[11].

This study looks at the use of a low cost effective technology such as the Papanicolaou smear to show some kind of association between genital tract symptomatology and human papilloma virus infection of the cervix

SUBJECTS AND METHODS

The subjects were 450 randomly selected sexually active women attending the antenatal clinics in the Department of Obstetrics and Gynaecology of the University of Maiduguri Teaching Hospital, Nigeria, between April 2001 and May 2002. They were recruited after consenting to participate and a formal approval had been given by the institution's Ethics and Research Committee. The recruitment continued until a sample size of 450 was reached. This was calculated using the WHO Epi Info Version 6 programme for population or descriptive study using simple random sampling.

It was based on a population of 4,342 patients/clients attending the recruiting clinics from April 2001 and May 2002. The purpose, nature and value of the procedure were explained to each prospective patient and her consent sought. All consenting patients had pap smears taken using a moistened unlubricated Cusco's bivalve speculum and an Ayre's wooden spatula after a questionnaire containing the age and genital tract symptomatology had been filled. The smears were immediately transported to the histopathology laboratory immersed in 95% ethanol for preparation, staining and reading. The smears were examined microscopically by a pathologist at the magnifications of 4, 10 and 100.

The WHO Epi Info statistical programme was used to compute and analyze the results. These included frequency distribution and tests of significance using Chi-square (χ^2).P value of <0.05 was taken to be significant.

RESULTS

Four hundred and fifty women attending various clinics at the Department of Obstetrics and Gynecology, University of Maiduguri Teaching Hospital had their Pap smears taken and questionnaires on marital factors filled. The cytology results of the Papanicolaou smears are shown in Table 1. Abnormal smears occurred in 245 (54.5%) of the patients screened (Table 1). Forty-eight women (10.7%) had HPV associated changes, constituting 19.6% of all abnormal smears. The ages of the patients screened are shown in Table 2. Their ages ranged between 15 and 64 years with a mean of 26±3 years.

Table 3 shows the association between genital tract symptomatology and human Papilloma virus infection of the cervix. HPV infection was significantly associated with abnormal vaginal discharge, irregular menstruation (P<0.01), as well as postmenopausal and postcoital bleeding (P<0.05). There was no significant association with vaginal itching (P>0.05).

Figure 1

Table 1. Cytology report of Pap smears

Class of Papanicolaou smear	Number	Percentage
Normal	205	45.6
Inflammatory	124	27.6
Cervical dyskaryosis	73	16.2
Human Papilloma virus changes	48	10.7
Total	**450**	**100**

Figure 2

Table 2. Age distribution of the women screened

Age (Years)	Number	Percentage
15-19	60	13.3
20-24	158	35.1
25-29	138	30.7
30-34	53	11.8
≥35	41	9.1
Total	**450**	**100**

- Range =15-64; Mean= 26±3 years

Figure 3

Table 3. Association between clinical features and human Papilloma virus infection of the cervix.

Variable	Positive	Negative	Total
Abnormal vaginal discharge			
YES	39	233	272
NO	9	169	178
Total	48	402	450
X2= 9.73, df=1, P=0.00			
Vaginal itching			
YES	32	241	273
NO	16	161	177
Total	48	402	450
Fisher exact test= 0.81, df=1, P=0.37			
Postcoital bleeding			
YES	4	6	10
NO	44	396	440
Total	48	402	450
Fisher exact test= 9.24,df= 1, P= 0.01			
Irregular menstruation			
YES	7	9	16
NO	41	393	434
Total	48	402	450
X^2=19.06, df=1, P=0.00			
Postmenopausal bleeding			
YES	2	3	5
NO	46	399	445
Total	48	402	450
Fisher exact test= 4.57, df=1, P= 0.03			

DISCUSSION

The clinical course of HPV infection may be regression, persistence, progression or recurrence [8]. When it progresses, it passes through the precursor lesions of the cervical intraepithelial neoplasia to invasive carcinoma of the cervix[8]. In spite of its high case-fatality rate, cancer of the cervix has up to 100% cure rate if detected early[8].Identifying women with HPV infection of the cervix and following them to monitor their progression to CIN and appropriately managing these precursor lesions will in most cases eliminate invasive disease.

The significant association between cervical HPV infection and the clinical features of abnormal vaginal discharge, irregular menstruation, postmenopausal and postcoital bleedingis in keeping with the sexually transmitted nature of the virus and its association with the premalignant and malignant lesions of the cervix as these clinical features are those of lower genital tract infection since HPV infection might be superimposed with bacterial infection. Postmenopausal bleeding can be due to endometritis, vaginal inflammation or vulval dermatitis[8].The lack of associations with vaginal itching is not surprising because the different diagnosis vary widely.

CONCLUSION

These associations may allow for targeting of a high risk group in sporadic cervical cytology screening programmes as in the practice in most developing countries such as ours or in an organized systematic cervical cytology screening programmes without discriminating other sexually active women.

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