Original Research Article

Human Papilloma virus awareness and uptake of HPV vaccination among human immunodeficiency virus positive patients in Nigeria.

Abstract

Background. The contribution of Human Papillomavirus (HPV) to the etiology of cervical cancer is well established. Vaccination of at risk population is recommended best practice.

Aim: To determine the awareness of HPV and uptake of HPV vaccination among Human immunodeficiency virus (HIV) positive women attending the antiretroviral clinic.

Study design: A cross sectional questionnaire based survey

Place and duration of study: Antiretroviral clinics in the University of Port Harcourt Teaching Hospital between 21st October -21st of December 2014.

Method: Questionnaire based survey of 162 HIV positive patients was conducted. Data on sociodemographic characteristics, awareness of HPV infection and previous uptake of HPV vaccination was collated and analyzed using SPSS Version 20. Data was presented as frequency, percentages and $P< 0.05$ set as significant.

Results. The mean age of respondents was 35.17± 7.14 years. Fourteen percent (23) were aware of HPV causing cervical cancer with 10.4%(17) aware of the existence of HPV vaccination. None of the patients were ever vaccinated against HPV. The main reason for lack of uptake was non-availability of the HPV vaccine.

Conclusion. Awareness of HPV as a precursor of cervical cancer and HPV vaccine uptake among this high risk population is abysmally poor. There is an urgent need for more sensitization of this group of patients to embrace preventive strategies to reduce the scourge of cervical cancer while concerted efforts should be made to increase availability of vaccine.

Introduction.

Eighty percent of cervical cancer related burden rest in developing countries of the world and it contributes to a significant proportion of all gynaecological oncology deaths [1, 2]. This had been associated with poor health seeking behaviour, late presentation and the lack of use of preventative strategies related to cervical cancer and precursors [3-5].

The link between oncogenic strains of human papillomavirus as the precursors of cervical cancer had been well established by several series [6,7]. A woman of reproductive age has a 50-90% risk of acquisition of the HPV virus during her reproductive lifespan with different oncogenic potentials [8,9]. These are largely categorized into low risk strains associated with development of warts and high risk strains which have been associated with the development of cervical cancer [1,6,7]. There are over 30 variants of HPV which target the genital mucosa with 15 strains considered as oncogenic [6].

Globally the commonest oncogenic serotypes are 16 and 18 while others like 31,33,35,45,52,57,58,66,67,69,70,73 and 82 had also been identified [1,7,10].

Spontaneous regression of HPV infection however, is the norm in a patient with normal cellular immune response without integration of the HPV virus into the cellular genome of the cervix [11].

About 50% of women do not develop any measurable antibody response following natural infection with the virus,however, in women who develop detectable antibody, levels are too low to confer any suitable immunity against reinfection [6,12]. HPV vaccine introduction is a landmark achievement in the primary prevention of cervical cancer, which has become so prevalent in some societies. Its introduction and usage had contributed significantly in reducing the incidence of cervical cancer related morbidities among the immunized group of females in the developed countries [7,13] but reports influenced by sociocultural, political and economic reasons in developing countries, reflect poor uptake [14,15].

Globally two vaccines against the HPV are available: Cervarix, a bivalent vaccine produced by GlaxoSmithKline (Brentford UK), against serotypes 16,18 and Gardasil which is a quadrivalent vaccine (Merck and Co USA) protective against serotypes 6,11,16, and 18 which are administered over six months period [13]. The exact duration of antibody protection from immunization is unknown but immunological studies have observed a 11-13 fold increase above natural immunity. However reports of up to 7.3years antibody detection after vaccination with Cervarix had been documented with statistical models projecting an up to 10 years protection [16,17].

Oncogenic virions persist in patients with compromised immunity with HPV integrating more frequently into the genome of the cervical epithelial matrix with resultant premalignant transformation [18,19]. Patients with human immunodeficiency virus are often associated with high prevalence of cervical cancer and acquisition of the HPV virus. According to the Centre for Disease Control, USA (CDC) deems the presence of cervical cancer as an AIDS defining disease [20]. With the antiretroviral therapy, life expectancy of these patients increases, but with other co-morbidities like cervical cancer. Consequently it is imperative these high risk groups embrace all available primary preventive measures, which improve outcomes, as evidenced in developed countries.

This study appraises awareness of oncogenesis of HPV, the use of HPV prophylactic vaccination in an HIV+ group, and ascertains whelter HIV+/AIDS patients attending an antiretroviral clinic, utilize recommended HPV prophylactic vaccination. Suggestions for amelioration of the situation are put forward.

Method: A cross sectional prospective study was carried out among 162 women attending the antiretroviral clinic between October 21st and December 21st 2014. A pretested interviewer administered questionnaire was used to obtain information from the patients. The antiretroviral clinic operated from Monday- Friday with an average of forty attendees presenting at the clinic per day. Patients were counseled on the study and consent obtained. Those who refused to give

consent to participate in the study were excluded from the study.

A total number of 4 participants were recruited per day, selecting one out of 10 patients until the desired sample size was obtained using a simple random technique over the two months period.

The desired sample size was determined using the Lesh-Fish formula for simple proportions [21] which is N= Z^2 Pq/d^2 while the P= 6.9%(0.069) which is the HPV vaccination uptake among adolescent daughters in Lagos Nigeria [22]. Allowing an error margin of 0.05 at 95% confidence interval, a minimal sample size of 105 respondents was calculated, however a total of 162 respondents were recruited for this Study.

Information on the age, parity, marital status, level of education, occupation of spouse, knowledge of route of transmission, awareness of human papillomavirus and its relationship to cervical cancer was obtained from the respondents. Information on previous vaccination with any available brand of HPV vaccine was also obtained from the respondents. The social classes of the respondents were determined using the Olusanyan et al formulae [23].

The information was collated and analyzed using SPSS version 20 software. Results of analysis were presented as frequency tables, percentages and test of significant was done using student t test with $P < 0.05$ considered as significant.

Results: The mean age of respondents was 35.17±7.14 years with age range of 21-61 years. 48.8%(80) were in the age group 25-34 years, 42.1%(69) were in the group 35- 44years. Other age distributions are as shown in table 1.

The review of parity of respondents showed that 56.7%(93) were para0-1, with the least with parity greater than five 4.9%(8).

Fifty seven point nine percent (90) of respondents were in the middle social class while 25% were in the high social class with 17.1% (28) in the low socioeconomic class. Concerning marital status 75.6% were married, 17.7%(17) were single while 6.7%(11) were divorced. These are shown in table 1.

Table 3 highlights the awareness of HPV, HPV vaccination and uptake of vaccination. Among respondents, 14%(23) were aware of HPV causing cervical cancer, 3.7%(6) had correct knowledge of the route of transmission of HPV while 10.4%(17) were aware of the existence of HPV vaccination.

Comparing uptake of uptake of HPV vaccination and awareness, 9.8%(16) were aware of HPV vaccination and had not taken previously while 90.2%(148) were not aware of the vaccination and hence did not take it.

Figure 1 depicts the reasons for failure of uptake of vaccination as expressed by the respondents: 53.7%(88) mentioned the absence of the vaccine as the reason for lack of use, 24.4%(40) sited fear of side effects, cost was expressed by 19.5%(32) and it been unnecessary in 15.2%(25)

Discussion

The relationship between human papillomavirus and cervical cancer had been established by several studies and had formed the platform for the development of vaccines as primary level of prevention among the populace. This study revealed an abysmal level of awareness of the link between HPV and cervical cancer among the group of patients surveyed who had been observed to have a higher risk of development of cervical cancer. This is most worrisome as these patients arrive at tertiary hospitals, which emphasizes these facilities do not publicize enough, to sensitize patients about risks of cervical cancer to which they are exposed.

Both human immunodeficiency virus and the human papillomavirus have the same route of transmission and the risk factors associated with these diseases are largely similar. Various series have associated HIV as medium for enhancing the acquisition of HPV [24, 25]. In addition to the fact that most of the patients are not aware of HPV, larger proportions were also not knowledgeable of the fact that the HPV virus is sexually transmitted. The lack of understanding of this fact implies that the patients are likely to still engage in risk factors associated with its transmission since most of the patients are in their reproductive age. The prevalence of sexually related disease conditions are largely associated with females of reproductive age [26-28] which makes it imperative, the need to reinforce the message to reduce the risk of HPV infection among this group of high risk patients.

In a bid, to reducing the scourge of human papillomavirus, the development of variants of vaccines have been used with good outcome in developed countries especially in patients with a higher propensity for development of cervical cancer. The use of this preventive strategy has been poor in females in the developing countries and worst still it was observed that all patients surveyed had not previously been immunized against the HPV inspite of the fact that about 50% of these women are still in the recommended age group for the vaccination. Despite the fact that, about 10.4% of women are aware of the existence of the HPV vaccination, this did not influence the uptake of the vaccine among this group. This implies that there must be other factors that are responsible for the lack of uptake of HPV vaccination.

In a review of the possible reasons for the lack of uptake of HPV vaccination, a large number of the respondents blamed non-availability of the vaccine to be the reason for non-use. This is a common scenario in most developing countries as a result of the inability of governments to procure the vaccine because of other competing health needs and lack of understanding of the burden of the disease. This is in contrast to what is obtained in developed countries where governments have legislative backing and had incorporated vaccination into their national immunization programmes hence increasing uptake with good outcome [29-32]. The assistance of non-governmental agencies like GAVIS in providing vaccines for low and medium income countries had gone a long way in making available vaccines in such environments [33] even though more need to be done in this direction.

The fear of side effects was sighted as the reason for non use of the vaccine as it is obtainable with most vaccines [34]. This erroneous perception can only be removed by proper public health education, which had positively affected uptake in some countries.

Cost was another limiting factor that was identified by less than a fifth of the women studied. The effect of cost on the uptake of vaccinations was highlighted by other series [35,36]. However, this study did not identify cost as a major factor since a look at the sociodemographic parameters of the respondents showed that about 82.9% were of middle and higher socioeconomic class.

Furthermore, most of the women also had socioeconomic support from their spouse since a large proportion of the women were married. There is therefore need to explore the marriage link and extend sensitization of the benefits of vaccinations to their husbands who had been observed to pay important roles in the decision making process of women in this environment [37].

Concluding remarks: The observation of poor uptake of HPV vaccination among this high risk group may infer a possible increase cervical cancer burden on the health system if stringent measures are not taken to avoid its occurrence. A built in primary/community health care enlightment programme is urgently needed to improve uptake in addition to other programmes among HIV positive women in Nigeria.

Ethical approval: The IRB number of UPTH/2014/15 was obtained from the Internal Ethics committee of the hospital for the study on the 29th of September 2014.

Conflict of interest: The authors have no conflict of interest to declare in this study

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Table 1: Sociodemographic characteristics

Variables	Frequency	Percentage
Age		
15-24	10	6.1
25-34	80	48.8
35-44	69	42.1
45-54	3	1.8
55-64	2	1.2
Parity		
0-1	93	56.7
2-3	47	28.7
4-5	16	9.7
>5	8	4.9
Social status		
Low	28	17.1
Middle	95	57.9
High	41	25.0
Marital Status		
Single	29	17.7
Married	124	75.6
Divorced	11	6.7

Table 1:- Age, Parity, social status and marital status of the cohort: Age range 15-64. Most frequencies in Age 25-34 and 35-44 years. Social status middle class is the majority, and most were married

Table 2: Awareness of HPV, knowledge of HPV vaccination and uptake of HPV vaccination

Variables	Frequency	
	Yes n(%)	No n(%)
Awareness of HPV causing cancer	23(14.0)	141(86.0)
Transmission route of HPV	6(3.7)	158(96.3)
Awareness of HPV vaccination	17(10.4)	147(89.6)

Table 2: Comparing awareness of HPV causing cancer against awareness of HPV vaccination (OD1.41 P=0.1999;CL 0.72-2.75)

Figure 1: Reasons for failure of uptake of vaccination

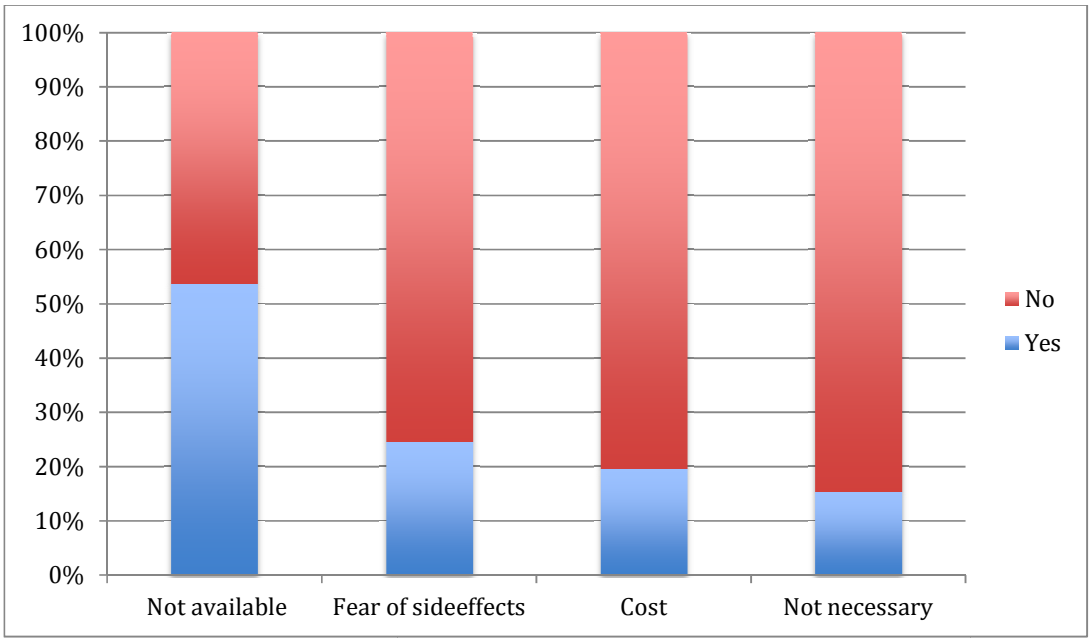

Figure 1: The main reason (over 50%) shows lack of availability. Fear of side effects, cost and deeming vaccination as unnecessary, all contribute but less to the failure of using vaccination. Red bars indicate negative responses; ***blue*** indicate positive responses.

Table 3 Awareness of HPV and previous uptake of HPV vaccination

	Uptake of HPV vaccination		Total
	No n(%)	Yes n(%)	n(%)
Awareness of HPV vaccination			
Yes	16(9.8)	0(0.0)	16(9.8)
NO	148(90.2)	0(0.0)	148

Table 3: Uptake of HPV was not affected by awareness of the HPV vaccination. (P=0.90)