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Original Article

Obstetrics and Gynaecology Section

Acceptability and Outcome of Cervical Cytology in Postnatal Women and Other Nonpregnant Women in Enugu, Nigeria: A Cross-sectional Study

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ABSTRACT

Introduction: Cervical cancer is a leading cause of cancer-related mortality in Sub-Saharan Africa. Although the disease is largely preventable via routine cervical cancer screening, the uptake is ridiculously poor in the sub-region. In Nigeria, current efforts are directed at counselling and screening of eligible women in health care facilities. Therefore, the routine post-natal clinic visit at six weeks postpartum provides a good opportunity to offer cervical cancer screening services.

Aim: To compare the acceptability of Pap-test and prevalence of abnormal cervical cytology between post-natal clinic attendees and other non-pregnant women at the University of Nigeria Teaching Hospital Enugu, Nigeria.

Materials and Methods: A cross-sectional analytical study was conducted from January to November 2014 in which acceptability and Pap-test results of 172 women attending the post-natal clinic were compared with an equal number of non-pregnant women from gynaecology and family planning clinics of the hospital. Both groups were selected by systematic sampling method. Outcome measures for each group included the prevalence of abnormal Pap-test and the proportion of women that accepted the Pap-test after appropriate cervical cancer education. Statistical analyses were both descriptive and inferential at 95% confidence level.

Results: Prior to the study, 44.2% (76/172) of participants in postpartum group, and 47.7% (82/172) in control group were aware of Pap-test (p=0.473); while 9.3% (16/172) and 10.5% (18/172) had used Pap-test in the two groups respectively (p=0.718). All participants in each group accepted the Pap-test after cervical cancer education. Prevalence of cervical Squamous Intraepithelial Lesion (SIL) in the postpartum group was similar to that of the control group (OR: 1.8; 95%CI: 0.75-4.10; p=0.21). The most common SIL in both groups was low-grade squamous intraepithelial lesion. There was no statistically significant difference in the distribution of SIL categories (p>0.05).

Conclusion: Acceptability and outcome of Pap-test are similar in post-natal and non-pregnant women in Enugu, Nigeria. Post-natal clinic visit provides an effective opportunity for routine cervical cancer information and screening in Nigeria.

Keywords: Abnormal pap-test, Cervical cancer screening, Papanicolaou smear willingness, Post-natal pap-test

INTRODUCTION

Cervical cancer is a public health concern especially in Africa where it ranks as the most common cause of cancer deaths among women [1]. In Nigeria, based on the 2018 estimates of International Agency for Research on Cancer (IARC), the disease is second to breast cancer in terms of cancer incidence as well as the most common cause of cancer deaths [1]. Notably, cervical carcinoma is about the only human cancer that is almost entirely preventable, and curable when diagnosed at an early stage [2].

The traditional screening method is the Pap-test, and it remains the most successful screening test for cervical carcinoma [2]. Besides early detection of pre-cancerous lesions, the advantages of Pap-test include simplicity, affordability, availability, high sensitivity and specificity. Despite these advantages, the utilisation of this secondary cervical cancer preventive method has remained low in our environment due to several factors that are related to poverty, ignorance, poor health-seeking behaviour, and reduced access to health services [3-5]. Unfortunately, it has been found that a good proportion of women who are aware of Pap-test do not have any reason for not using it [4,6], a situation that has been described as part of the "Not My Portion syndrome" in Nigeria [7].

The World Health Organisation (WHO) recommends Pap-test every 3 years for women between 25-49 years of age, and every 5 years for women over 50 years [2]. Despite this recommendation, there is yet no effective and coordinated cervical cancer screening programme for most low-income countries, including Nigeria [8-11]. Therefore, any opportunity to screen a woman for cervical cancer using Pap-test or any of the recommended methods by the World Health Organisation should be encouraged and utilised effectively [12]. It is known that both the pre-natal and post-natal visits are periods when mothers usually seek health care services for themselves and/or their babies; thus the antenatal and post-natal clinics present great opportunity to introduce other women health care programmes such as cervical cancer information and screening, just as family planning counselling is done during this period. In Norway, where a coordinated National cervical cancer programme exists, Pap-test for antenatal women improved coverage of the preventive health programme [13].

In present environment, however, the six weeks' postpartum visit, unlike the antenatal period, presents a better opportunity to offer the cervical cancer information and screening without the fear by women that the insertion of instruments into the endocervix might complicate their pregnancies. Moreover, hormonal changes in pregnancy seem to negatively affect endocervical cell yield and accuracy of cervical cytology [14], and also, a high level of spontaneous regression of prenatal cervical pre-invasive lesions occurs postpartum which may favour postpartum screening [15,16]. In Zaria Nigeria, 15.5% and 50% of women diagnosed with low-grade squamous intraepithelial lesion and high-grade intraepithelial

lesion respectively during pregnancy had spontaneous reversion to normal cytology at 6 weeks' postpartum [15]. These raise a concern about the rationale for prenatal Pap-test in a resource-poor setting. Despite this apparent preference for post-natal Pap-test, data on its acceptability by the women in Nigeria is lacking which leaves a knowledge gap. This study was therefore designed to compare the acceptability and results of Pap-test between post-natal and non-pregnant women in Enugu, Nigeria, after a cervical cancer screening education.

MATERIALS AND METHODS

A cross-sectional analytical study was carried out from January to November 2014. Pap-test results of consenting eligible mothers attending the routine six weeks post-natal clinic (Group A) were compared with those of matched non-pregnant women attending the gynaecology or family planning clinic (Group B) at the University of Nigeria Teaching Hospital (UNTH) Ituku-Ozalla, Enugu, Nigeria. The study was approved by the Ethics committee of the hospital (NHREC/05/01/2008B-FWA00002458-IRB00002323).

A sample size of 172 per group was adequate for the study using an abnormal Pap-test prevalence of 12.2% [17], confidence level of 95%, an error margin of 5%, and attrition rate of 5%.

Inclusion criteria: All apparently healthy women that attended the clinic within the study period were eligible for the study.

Exclusion Criteria: History of cervical cancer, abnormal cervical smear, cervical surgery, or total hysterectomy. The UNTH Enugu is a teaching hospital that offers both primary and specialist health care to residents of Enugu state and neighbouring states of Nigeria. Its, post-natal, gynaecology and family planning clinics are held every weekday.

Thus, for each clinic day, participants in each group were selected by systematic random sampling method, using a sampling interval of three and random start of one until the desired sample size of 172 was achieved. There was individual counselling of each woman recruited for the study. After obtaining informed consent, each participant went through the 4 stages of the study:

In stage 1, each participant's socio-demographic data, residential addresses and phone numbers, gynaecological and obstetric history, were noted.

In stage 2, the first part of a pre-tested questionnaire consisting of seven structured questions in English language was administered to each participant to ascertain her awareness of cervical cancer, awareness and past use of Pap-test.

In stage 3, each participant was offered information on cervical cancer and its prevention by Pap-test using labelled pictures/diagrams of the normal and cancerous cervix-a strategy referred to as PBCC [7]. This was followed by the administration of the second section of the questionnaire consisting of a structured question, that assessed the participant's willingness to carry out free Pap-test as part of the study (acceptability of the Pap-test).

Finally, in the 4th stage of the study, Ayre's spatula and cyto brush were used to collect Pap smear from each participant using the standard method. The smears from each participant were fixed immediately with 95% methyl alcohol.

All smears were processed at the Morbid Anatomy Department of the hospital and analysed by a pathologist blinded to the study objectives. All stages of the study were carried out by the investigators or their research assistants (resident doctors). The assistants were trained on the research objectives, informed consent, confidentially, and Pap smear collection technique.

All the participants were followed-up in the clinics after 2 weeks of specimen collection during which Pap-test results were discussed. Participants, whose results showed no abnormality, were counselled on the need for routine screening, while those with abnormal result were invited for further management.

For this study, abnormal Pap-test was defined as a Pap-test result that showed inflammatory cells or SIL [18], while acceptability of Pap-test referred to the willingness of the participants to undertake the Pap-test herself after appropriate cervical cancer education [19].

STATISTICAL ANALYSIS

Data collected was analysed using the Statistical Package for Social Sciences software version 21 for windows (IBM Corporation). Statistical analyses were both descriptive and inferential at 95% confidence level. Continuous variables were analysed using the mean±2SD where appropriate. Discrete variables were analysed using proportions and Pearson's chi-square test. A p value of <0.05 was considered as statistically significant.

RESULTS

A total of 173 women per group were recruited for the postpartum (A) and control (B) groups but, 172 women completed the study per group and were analysed giving a completion rate of 99.4%. The age group and educational status for both groups were 31-40 years (44.8% versus 39.5%) and secondary education (51.2% versus 47.7%) respectively [Table/Fig-1]. Prior to the study, 44.2% (76/172) of participants in postpartum group, and 47.7% (82/172) in control group were aware of Pap-test (p=0.473); while only 9.3% (16/172) and 10.5% (18/172) of participants had used Pap-test in the two groups, respectively (p=0.718).

Variable	Variable sub-group	Postpartum group n=172		Control group n=172	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Age (years)	≤20	15	8.7	8	4.7
	21-30	56	32.6	61	35.5
	31-40	77	44.8	68	39.5
	41-50	24	13.9	31	18.0
	≥50	0	0	4	2.3
Marital status	Single	7	4.1	34	19.8
	Married	152	88.4	101	58.7
	Divorced	4	2.3	17	9.9
	Others	9	5.2	20	11.6
Educational status	No formal education	4	2.3	8	4.7
	Primary	37	21.5	24	13.9
	Secondary	88	51.2	82	47.7
	Tertiary	43	25.0	58	33.7
Parity	Primipara	34	19.8	28	16.3
	Multipara	110	63.9	108	62.8
	Grand-multipara	28	16.3	36	20.0
Religion	Christianity	164	95.3	166	96.5
	Islam	5	2.9	4	2.3
	ATR*	2	1.2	0	0
	Others	1	0.6	2	1.2
Tribe	Ibo	158	91.9	161	93.6
	Hausa	5	2.9	3	1.7
	Yoruba	4	2.3	2	1.2
	Others	5	2.9	6	3.5

[Table/Fig-1]: Participants' Socio-demographic characteristics.
*African Traditional Religion

Following participants education on cervical cancer and its screening by Pap-test, all participants (100.0%, 172/172) in each group accepted to undertake the Pap-test.

The prevalence of SIL in the post partum group was 11.6% (20/172), while that of the control group was 10.5% (18/172). The observed difference was not statistically significant (OR: 1.8; 95% CI: 0.75-4.10; p=0.21). Similarly, there was no significant difference in the overall prevalence of abnormal cervical cytology (SIL plus Inflammatory cells) in the two groups [13.9% vs 12.1%; OR: 1.5; 95% CI: 0.62-2.40; p=0.18] [Table/Fig-2].

Abnormal cervical cytology category	Postpartum group	Control	p-value	OR (95% CI)
	Frequency (%) (n=172)	Frequency (%) (n=172)		
Inflammatory Cells (IC)	4 (2.3)	3 (1.7)	0.422	0.9 (0.32-3.6)
SIL	20 (11.6)	18 (10.5)	0.213	1.8 (0.75-4.1)
ASCUS	4 (2.3)	3 (1.7)	0.711	1.4 (0.24-24)
LSIL	9 (5.2)	10 (5.8)	0.683	0.8 (0.12-3.4)
HSIL	6 (3.5)	5 (2.9)	0.601	0.6 (0.13-2.6)
AGC	1 (0.6)	0 (0.0)	0.923	0.7 (0.21-4.7)
IC+SIL	24 (13.9)	21 (12.1)	0.181	1.5 (0.62-2.4)

[Table/Fig-2]: Prevalence and pattern of abnormal cervical cytology between the groups.
SIL: Squamous intraepithelial neoplasia; ASCUS: Atypical squamous cells of undetermined significance; AGC: Atypical glandular cells; LSIL: Low grade squamous intraepithelial lesion; HSIL: High grade Squamous intraepithelial lesion

DISCUSSION

Women in Sub-Saharan Africa countries, including Nigeria have a worrisome high rate of cervical cancer- a public health problem that affects both the women's health and family economy. Though this study primarily set out to compare the prevalence of abnormal Pap-test between women attending the post-natal clinics with those from gynaecology and family planning clinics, it is noteworthy that the baseline characteristics of participants showed poor uptake of Pap-test despite the relatively good awareness of cervical cancer and its screening methods, which are characteristic of the study environment and indeed of Nigeria [3-5]. Interestingly, this study found a total acceptance of Pap-test by participants in the post-natal clinics and gynaecology/ family planning clinics after appropriate information which is similar to the 99.8% reported earlier from the general out-patient clinics of the study centre [4]. The high acceptability of Pap-test in this study strongly suggests that the post-natal and other women-centred out-patient clinics are good environment for the provision of the "Provider-Initiated Cervical Cancer Counselling And Testing (PICCT)"-a strategy proposed for all eligible women seeking health care in settings without coordinated cervical cancer screening program, and it involves cervical cancer information and screening with opt-out option [4,7,20].

The pregnancy state affects cervical cytology results because of a wide range of physiological changes involving the cervical endothelium/stroma [21] however, these changes should resolve after delivery which may be associated with the reported high spontaneous regression rate of pre-malignant cervical lesions after delivery [16]. This study found that the prevalence and pattern of abnormal cervical cytology among women attending the 6-weeks post-natal clinic were similar to that of non-pregnant women from other clinics which may suggest that the pregnancy-related cervical changes in the postpartum (Group A) women might have regressed spontaneously by the end of puerperium. The prevalence of SIL in both the post-natal and other non-pregnant women is comparable to the prevalence of 12.2% found by Chukwuali LI et al., in the study area- Enugu, Nigeria. [17] However, it is higher than the findings of other related studies [15,20-23], possibly due to differences in study population and heterogeneity in study design.

Furthermore, the patterns of abnormal cervical cytology in both groups were comparable, with LSIL being the most common SIL. This is similar to the findings of other studies from South-western Nigeria [23,24], and North-western Nigeria [15]. It, however, differed with studies from North-central Nigeria [22] and Pathum Thani Province Thailand [25], that found ASCUS as the most common type of abnormal cervical cytology in their study population. The prevalence of inflammatory cells in both groups of this study were remarkably low when compared to a prevalence of 52.5% reported by Audu BM et al., in Gombe, Northern Nigeria [26]. This obvious disparity of cervical inflammatory changes in the two populations may suggest a differing regional prevalence of reproductive tract infections, especially Chlamydia trachomatis [27], which calls for further studies. The results of this study would no doubt help redirect the policymakers in designing policies and strategies aimed at improving the uptake of Pap-test or other recommended cervical cancer screening methods, in sub-Saharan Africa [12].

Limitation(s)

This study assumed that pregnancy-associated glandular and stromal cervical changes had resolved at 6 weeks postpartum which might not be completely true; however, the effect of the residual changes on the pap-test results was likely minimal because of the similarity of their basic characteristics with those of the non-pregnant population. Another drawback to the study is the fact that the study was based in one centre and, as such, might limit the generalisation of its results to the entire population.

CONCLUSION(S)

The acceptability of cervical cytology at six weeks post-natal visit was very high and comparable with that of non-pregnant women in Enugu, Nigeria. Also, the prevalence and pattern of abnormal cervical cytology for women at six weeks post-natal clinic visit were comparable with the non-pregnant population. Therefore, the post-natal clinic visits at six weeks postpartum could provide a great opportunity for routine provider-initiated cervical cancer counselling and testing in Nigeria and similar resource-poor settings that lack organised cervical cancer screening program.

Declaration: The abstract of this study (FCS 11.653) was presented orally at the International Federation of Gynecology and Obstetrics (FIGO) XXII World Congress 2018 at Rio deJaneiro Brazil.

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