CERVICAL SCREENING WITH LUVIVA MACHINE FOR EARLY DETECTION OF CERVICAL DYSPLASIA: EXPERIENCE FROM EKITI STATE, NIGERIA

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BACKGROUND: Cervical cancer is a preventable and potentially curable cancer when detected early, yet it continues to be among the leading causes of cancer death in developing countries. Screening for cervical dysplasia is critical for early detection in order to reverse this trend. Several traditional screening methods such as pap smear test, HPV-DNA screening test, visual inspection with acetic acid or lugol iodine are more common with different specificity and sensitivity. LuViva® Advanced Cervical Scan is an innovative, point of care test that has great promise for detecting cervical neoplasia in its earliest form, both in developing and developed countries.

Table 1. Age Distribution for 254 Patients

Age Category	Number	Percent (%)	
Median	47		
Range	30 – 62		
30-39	4	1.6%	
40-49	152	59.8%	
50-59	92	36.2%	
60+	6	2.4%	
	254	100%	Total

OBJECTIVE: This study was designed to describe our experience with the use of LuViva advanced cervical scan as a primary screening tool for cervical dysplasia. Currently the LuViva is approved as a triage test for patients (who have had an abnormal cytology, positive HPV test or factors that consider them high risk for cervical disease) before being referred to colposcopy and/or biopsy. The objective of this study was to consider the LuViva scan using different threshold criteria from that used for triaging women with abnormal Pap smears or positive HPV tests, in order to evaluate it as a screening modality for cervical dysplasia.

METHOD: This was a descriptive cross-sectional study, whose data were obtained from the free health screening for civil servants in Ekiti State conducted between 11th and 21st February, 2014. Screening for Cervical dysplasia was conducted using the LuViva Advanced Cervical scan for women 30 years old and above (see table 1). The result was automatically recorded and transferred to an Excel sheet for analysis.

Image 1—LuViva MHS Device

RESULT: A total sum of 254 patients was screened during the study period. Only one patient had a prior pap smear done. The automated self-reporting LuViva scan presented the result of the benign changes on the cervix as low risk in 143 patients (56.3%), moderate risk in 52 patients (20.5%) and high risk in 59 patients (23.2%) (see table 2). The LuViva scan further indicated a low risk in 221 patients when no referral cytology was available. This indicates that LuViva performed with a specificity of 87% in a screening population (see table 3).

Table 2. Screening Results Using LuViva

Result Category	Number	Percent (%)	
High	59	23.2%	
Moderate	52	20.5%	
Low	143	56.3%	
	254	100%	Total

Table 3. Specificity of LuViva in a Screening Environment

Result Category	Percent (%)
High	6.7% (17/254)
Moderate	6.3% (16/254)
Low	87% (221/254)

CONCLUSION: There is a correlation between the performance of LuViva as a primary screener as presented here, as well as the evaluation presented in 2012 at the American Society of Colposcopists and Cervical Pathologists Annual Clinical Meeting by Dr. Lisa Flowers of the Emory University School of Medicine. In these and other studies, approximately 80% to 90% of the LuViva scans for women with CIN2+ read as moderate or high, whereas only about 13% of the presumed normal screened population in Ekiti State did. In addition, LuViva demonstrated specificity for US women with normal colposcopy, negative HPV and non-dysplastic cytology as similar to that shown by women in Ekiti State. The results from both studies therefore suggest consistent performance in identifying patients free of disease. Our experience indicates the LuViva Advanced Cervical Scan has potential as primary screening for cervical dysplasia, especially in areas with no current infrastructure for cervical cancer screening.

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[1]Flowers, LC. "Preliminary assessment of Cervical Spectroscopy for Primary Screening of Moderate and High Grade Cervical Dysplasia". American Society of Colposcopists and Cervical Pathologists, 2012 Annual Meeting Presentation.

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