

Research Article

Screening for cervical cancer during pregnancy

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ABSTRACT

Background: Carcinoma cervix is the second most common gynaecological cancer causing deaths among women. PAP smear being most sensitive and specific screening test reducing mortality and morbidity, can be used to identify early changes in cervix during pregnancy. The aim of the study was to offer cervical cancer screening for pregnant women and motivate them into the mainstream of screening subsequently and evaluate their acceptance. Also to identify reproductive tract infections, associated pregnancy changes and their effect on pregnancy outcome. This prospective study enrolled 200 normal pregnant patients admitted at Sri Rama Krishna Hospital from September 2012 to January 2014.

Methods: All the patients selected for this study underwent history taking and examination. Pap smear was taken with patient in dorsal position. Among 200 cases, 196 (98%) were adequate smears and only 4 (2%) were inadequate. Adequate smears which were grouped as per Bethesda system, majority (97.5%) fell in Group I and were found to be normal or inflammatory smear, while only one showed ASCUS. Of the cases in Group I, 114 cases (57%) showed inflammation while 81 cases (40.5%) were normal. Statistical analysis used was SPSS 11.5.

Results: Majority of the patients involved in study were in the age group of 20-35 years with only 3.5% below 19 years and 2% above 35 years with mean age of 26.9 years. Most of the patients were married at 20-30 years of age while only 4.5% were married after 30 with mean age of marriage 23.4 years. Importantly 15% had an early marriage between 15-19 years. Most of patients who consented for study belonged to third trimester (91.5%) followed second trimester (17%) with average of 32.7 weeks. About 80% had knowledge regarding screening for cervical cancer. Statistical analysis used was SPSS 11.5.

Conclusions: PAP smear being a cost effective, easy to perform test, can be carried out even in pregnant woman. It does not interfere with the natural course of pregnancy and hence safety is ensured. Pregnancy is a potential opportunity to counsel and educate them regarding the significance of screening.

Keywords: Pregnancy, PAP smear, Cervical cancer, Screening

INTRODUCTION

Cervical cancer is one of the most common malignancy among females, worldwide.¹ Every year, more than 493,000 individuals are diagnosed with and 274,000 die from cervical cancer. The majority of these cases (80%) are experienced in developing countries.² PAP smear is

the most sensitive and specific screening test for cervical cancer in reducing mortality and morbidity of women.³

However, high incidence and mortality rates continue in developing countries due to the lack of screening programmes.⁴ In India it is an important public health problem for women leading to annual mortality of

70,000.⁵ and this country has the largest burden of cervical cancer patients in the world.⁶

Aim of study

- To offer cervical cancer screening for pregnant women and motivate them into the mainstream of screening subsequently.
- To determine the prevalence of abnormal PAP smear in pregnant women and guide them for further management based on the results obtained.
- To identify reproductive tract infections, associated changes and their effect on pregnancy outcome.

METHODS

Design of the study was prospective study. Study area was Sri Rama Krishna Hospital, Coimbatore. Period of study was September 2012 to January 2014.

Study population

This prospective study included 200 antenatal patients who reported to the department of obstetrics and gynaecology, Sri Ramakrishna Hospital, between September 2012 to January 2014.

Patient selection

Inclusion criteria

- All in and out patients visiting for antenatal check-ups above 10 weeks of gestation.
- Women with previous abnormal Pap smear who is not followed up.

Exclusion criteria

- Antenatal women with history of bleeding following Pap smear during previous pregnancy
- Women with history of threatened abortion in present pregnancy.
- Pregnant women not willing for Pap smear.

This prospective study included 200 antenatal patients who reported to the department of obstetrics and gynaecology, Sri Ramakrishna Hospital, from September 2012 to January 2014.

Study tool

A pretext proforma meeting the objectives of the study was prepared. The cases for the study were selected in accordance with the above mentioned inclusion and exclusion criteria.

The purpose of the study was explained to the patients and informed consent was obtained. The patients were

given option of opting in and opting out. The data was collected according to the proforma in terms of detailed history and symptomatology.

All the patients selected for this study underwent history taking and examination.

Pap smear was taken with patient in dorsal position. Using Cusco's speculum cervix visualised and scrapings from squamo-columnar junction were obtained using cytobrush for endocervix and Ayre's spatula for ectocervix with 360° swipe. Scrapings were evenly spread over glass slide and immediately fixed with 95% ethyl alcohol for 30min and stained with Papanicolaou stain.



Figure 1: PAP smear prerequisites.

The cytology reports which were adequate categorised as per Bethesda system 2001 as below:

Group I - Normal smears/ inflammatory cells

Group II - ASCUS

Group III – Low SIL

Group IV – High SIL

Group V – Squamous cell carcinoma

Statistical analysis

All the data were first recorded in excel format and statistical analysis was done using SPSS 11.5. The results were expressed in charts, tables and line diagrams. The age group, age of marriage, socioeconomic status, educational status, number of pregnancies, contraceptive methods adopted, cytological reports obtained and any local abnormality in the screened population were analysed.

RESULTS

The results were as follows:

Majority of the patients involved in study were in the age group of 20-35 years with only 3.5% below 19 years and 2% above 35years with mean age of 26.9 years.

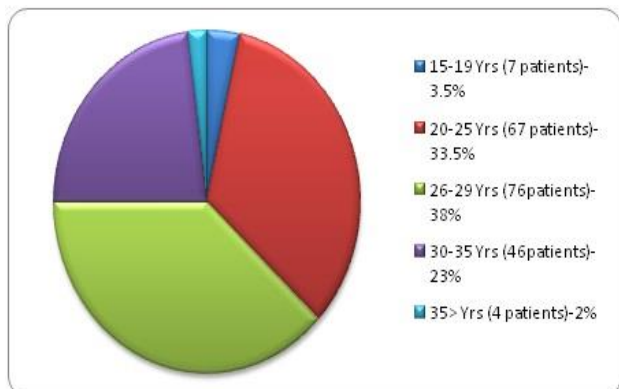


Figure 2: Age distribution.

Most of the patients were married at 20-30yrs of age while only 4.5% were married after 30 with mean age of marriage 23.4 years. Importantly 15% had an early marriage between 15-19 years.

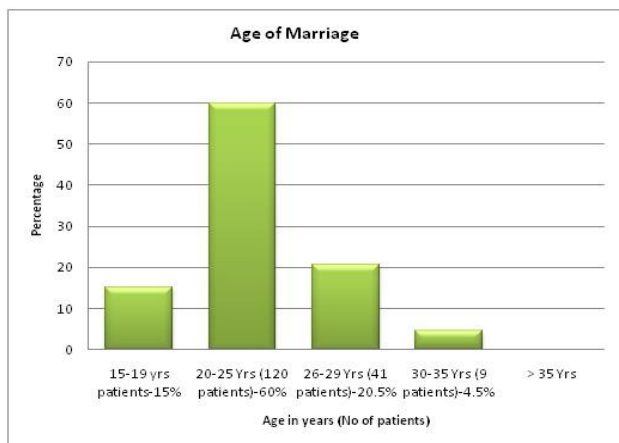


Figure 3: Age of marriage.

Most of patients who consented for study belonged to third trimester (91.5%) followed by second trimester (17%) with average of 32.7wks.

Majority of them were primigravidas (50%), remaining were gravida 2 or more (50%).

Among 200 women, majority (94.5%) did not practice any contraceptive method and those who practiced, most common method used was IUCD (4%) followed by OCP (1.5%). None of them followed barrier method. Most of the cases screened belonged to the class 2 and 3 strata with majority in class 3 (62.5%), only one belonged to class 1 strata.

Majority (65.5%) had attended college/University, around 15% had middle school education, 16.5% studied

till higher secondary and around 3% were illiterate. Regarding educational status, 4 (2%) had studied less than 10th std, 16 (8%) had studied more than 10th std.

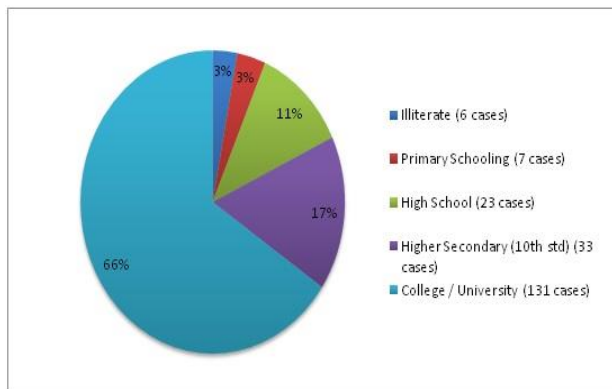


Figure 4: Education.

About 80% had knowledge regarding screening for cervical cancer.

Table 1: Knowledge of PAP test.

Knowledge of PAP test	Dinc A ³	Nguyen et al ⁷	Present study
Not heard of PAP test	39.3%	26 %	8.5%
Heard about PAP test	60.7%	74%	80.5%

Among 200 women, 13 (6.5%) complained of excessive vaginal discharge, 4 (2%) had pustules over the vulva, 7 (3.5%) had erosion of the cervix and 3 (1.5%) had fungal infections.

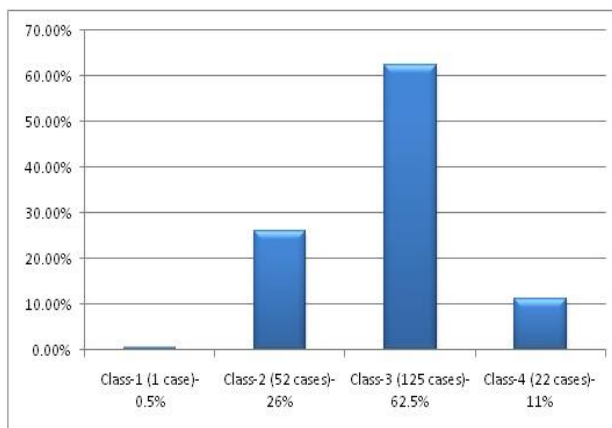


Figure 5: Bethesda classification.

Among 200 cases, 196 (98%) were adequate smears and only 4 (2%) were inadequate due to air drying, scant cellularity or thick smear. Among adequate smears which were grouped as per Bethesda classification, majority (97.5%) fell in Group I and were found to be normal or

inflammatory smear, while only one showed ASCUS. Of the cases in Group I, 114 cases (57%) showed inflammation while 81 cases (40.5%) were normal.

Table 2: Adequacy of smear.

Adequacy	No. of cases	%	Repeat smear for inadequacy
Adequate smear	196	98 %	NA
Inadequate smear	Scant cellularity-1 Thick smear-2 Air drying-1	2%	Nil
Total	200	100 %	-

Inflammatory smears, were grouped based on degree of inflammation as mild (58), moderate (53) and severe (3). Among them 2 cases with moderate and 1 case in severe

inflammation were diagnosed to be candidal. Only one case of ASCUS found with severe inflammation.

Table 3: Results as per Bethesda classification.

Group	Diagnosis	No of cases	Percentage
	Inadequate	4	2 %
Group I	Normal / Inflammatory smear	Normal :81 Inflammatory:114	97.5%
Group II	ASCUS	1	0.5 %
Group III	LSIL	Nil	-
Group IV	HSIL	Nil	-
Group V	SCC	Nil	-

Table 4: Degree of inflammation.

Degree of inflammation	No of cases	Non-specific inflammation	Organisms with inflammation	Atypia with inflammation (Group II – V)
Mild	58	58	-	-
Moderate	53	51	2 (<i>Candida</i>)	-
Severe	3	1	1 (<i>Candida</i>)	1 (ASCUS)
Total	114	111	3	

Table 5: Type of contraception.

Type of contraception	Balgir RS ¹⁵	Patro BK ¹⁶	Makade KG ¹⁷	Present study
Oral contraceptive Pills	24.3	12.1%	28.1%	27.3 %
Intra uterine contraceptive device	14.3	9.6%	9.9%	72.7%
Condoms	47%	23.7	18.4%	-
Others (Tubectomy / Vasectomy)	14.3	54.6	11.9%	-
Mean age group	-	20.4%	-	23.1%
Prevalence of contraception	53.84 %	63.3	68.4	5.5 %

Table 6: ASCUS.

Diagnosis	Vural et al. (2004) ²	Ayten Dinc., (2012) ¹	Present study
ASCUS	1.55%	0.9 %	0.5 %
Inadequate smear	Scant cellularity-1 Thick smear-2 Air drying-1	2%	Nil
Total	200	100 %	-

DISCUSSION

Cervical cancer is one of the most common malignancy among females worldwide. The majority of these cases (80%) are experienced in developing countries.²

Pregnancy creates an important opportunity to screen the cervix for neoplastic and infectious diseases, and also to spread awareness.³ Studies report that 10%-70% of dysplasia cases diagnosed during pregnancy regress and sometimes even disappear postpartum, while persistence in the severity of cervical neoplasia is reported in 25%-47% of cases and progression in 3%-30% of cases.³ Data regarding diagnosis of cervical dysplasia were obtained from expert opinions, anecdotal personal experiences or retrospective series of pregnant women.

In the present study screening was done on a population in which the ages ranged from 19 and 43 years with a mean age of 26.9 years similar to studies done at Turkey by Dinc A in and at Thailand by Ngaojaruwong N et al in 2008, as a valuable step in the prevention of cervical

cancer.^{3,7} The mean age of marriage was 23.4 years which is similar to a study done at Turkey by AytenDinc in 2008-09, suggesting role of early sexual life in the pathogenesis of cervical neoplasia.³

The Pap smear should be performed at the first prenatal visit regardless of the duration of pregnancy to establish the presence or absence of SIL, STD, and BV, all of which represent a risk to the fetus and the mother. This initial smear will establish a baseline diagnosis and can be followed up accurately throughout pregnancy by repeated Pap smears.^{8,9}

In the present study majority of the cases were screened in the third trimester (91.5%) followed by second trimester (8.5%) in contrast to a study by AytenDinc, on Turkish women who were screened in the second trimester. The average week of pregnancy at which the PAP smears were done was at 32.7 weeks which is much later than AytenDinc's Study.

Awareness about PAP test was 80.5 % in our study which is similar to other studies where more than 60% of women had heard about PAP test.

We found 4 cases with folliculitis or furunculosis among those who had abnormal vaginal discharge, 3 cases (1.5%) had Candidial vaginal discharge which is comparable to the findings of AytenDinc who found Candida in 2.7% of pregnant women and Meena Priyadhashini et al in 2013 who found Candida in 1.1 % of pregnant women.¹⁰ The relationship between pregnancy and infective vaginal discharge with a particular note on Candidiasis indicates increase in hormonal influences and alteration in vaginal pH.¹¹ The causes of less than optimum smears are thick smear with an abundance of red blood cells or inflammatory cells, application of vaginal tablet or tampon or sexual intercourse and vaginal douche 48 hours before an exam, inadequate scraping or absence of endocervical cells and poor fixation, often caused by air drying. In the present study 2% of the smears were inadequate which is similar to a study done at Coimbatore by Meena Priyadarshini V et al (1.4%) in 2013.¹⁰ Pregnancy creates an important opportunity to screen the cervix for neoplastic and infectious diseases, and pick up the disease in early stage will increase. Similar to non-pregnant women the incidence of abnormal Pap test is 5-8% in pregnancy.

Meena Priyadhashini V et al found abnormal Pap test in 1% of pregnant women studied which is similar to our study where 0.5% of the smear showed abnormality and diagnosed as ASCUS. Comparably Vural et al. and AytenDinc found ASCUS in 1.55% and 0.9 % respectively of the pregnant women screened.¹²

According to a retrospective study conducted in the USA, lesions regressed in 64% of pregnant cases diagnosed with ASCUS and SIL, and lesions were preserved in 34% of pregnant cases.¹³ Self-regression after natural delivery

correlated with the increase in desquamation of the cervix. Inflammatory component is commonly seen on Pap smears from pregnant women.

In the present study of the 114 with inflammation, majority of cases showed a mild to moderate degree of inflammation. Of the smears with moderate inflammation 2 showed Candida. 3 cases showed severe inflammation in which one had Candida. No cause for inflammation could be identified in the rest of the smears and were called non specific. Bedrossian et al addressed this question by evaluating the significance of mucopurulent exudates on Pap smears (inflammatory cells covering more than 50% of the smear) in high-risk pregnant women.¹⁴ They found these patients to be at high risk for STD and pregnancy-related complications, hence a more close watch on patients with inflammatory smears are required during the course of pregnancy to prevent complications.

The management of the pregnant patient should be based on the results of cytology, and colposcopy and biopsies in relevant situations, 3 cases of Candida were identified and appropriately treated. Management options for pregnant women with ASC-US are identical as described for nonpregnant women, with the exception of deferring colposcopy until 6 weeks postpartum is acceptable. Endocervical curettage in pregnant women is unacceptable. One case of ASCUS was identified in our study and was evaluated for HPV testing and found negative. The patient was still advised follow up in the postpartum period.

CONCLUSION

Cervical cancer can be detected at an early stage by Pap smear being a cost effective, easy to perform test and safe to be carried out even in pregnant woman without jeopardising the outcome. Visits for antenatal check ups by women are a potential opportunity to perform this test and educate them regarding the significance of screening. Present study has highlighted this fact and proved they are very receptive during antenatal period. In addition helps in identifying and treating infections that could play a role of cofactor in the pathogenesis of cervical carcinoma.

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