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A Prospective Study onCervical PAP Smear - It's Implication and Utility for Cervical Cancer Screening in a Tertiary Medical College.

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Abstract-*Cervical cancer remains the most common cancer in women of the developing world, largely as a result of a lack of screening. The gold standard screening test for cervical cancer, the Pap smear, has been effective in reducing cervical cancer incidence and mortality by identifying precancerous and cancerous lesions; however, little is known about quality assurance practices for gynecologic cytopathology in resource-limited settings. The goal of this study was to document baseline clinical andlaboratory characteristics in the hope of improving the efficacy of cervical cancer screening and informingfuture quality improvement initiatives. Patients in the age group 15-45 and 50-70years with various complaints were screened during Jan 2016 to December 2017. Total 1000 patientswere studied. Slides were fixed in 95% ethyl alcohol and stained with Pap stain. Slides were reportedaccording to The 2014 Bethesda System, by cytopathologists. Out of 1000 patients studied, 950 showedinflammation and other benign lesions. 50 patients showed premalignant and malignant lesions.Premalignant lesions were present in 30-45.year of age group.*

Keywords-*PAP smear,Bethesdastudy,screening,premalignant lesion*.

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I. Introduction

Cancer of uterine cervix is a leading cause ofmortality and morbidity among women worldwide. In developing countries it is the mostcommon gynecological cancer and one of theleading causes of cancer death among women.

Nearly 4 lacs new cases of cervical cancers arediagnosed annually worldwide and 80% of themare diagnosed in the developing countries.There are 1.7 million cases in the developingworld and as many as 5-13 million womenhave precancerous lesions.[1,2]Countries that have successfully reducedtheir burden of cervical cancer have been able to do thisthrough organized screening programs [3,4] .Cervical cancer haswell-defined premalignant lesions before the development ofinvasive lesions [5] The objective of cervical cancer screening, therefore, is the detection of these lesions before developinginto invasive cervical cancer.

According to National Cancer Registry Programof India, cancers of uterine cervix and breast are leading malignancies seen in Indian women[6] .Cervical cancers can be prevented through early detection using several screening techniques.Cervical smear is a sensitive test for earlyscreening of the cervical lesion and most widelyused system for describing PAP smear result isTBS 2014, The Bethesda System[7]

The goal of this study was to document baseline clinical andlaboratory characteristics in the hope of improving the efficacy of cervical cancer screening and informingfuture quality improvement initiatives.

II. Materials and Methods

This prospective study was carried out on Department of Obstetrics & Gynaecology at BankuraSammilani Medical College, west Bengal period from1st Jan 2016 -30th Dec 2017. This was a two year hospital based prospective study. A total of 1000 patients were for in this study.

Study design: Prospective observational study**.**
Study Location: This was a tertiary care teaching Hospital based study done in Department of Obstetrics & Gynaecology at BankuraSammilani Medical College, west Bengal.
Study Duration- 1st Jan 2016 -30th Dec 2017.
Sample Size- 1000 patients.

Sample size calculation- The sample size was calculated on the basis of a single proportion design. The target population was from a mixed population having a variedsocio-economic background.

Subject & selection method- The study population was drawn from all patients who presented with various complaintsin the age group of 15-70 years.

Inclusion Criteria-
1.Age 15-70 years.
2.Patients having sexual intercourse irrespective of marital status.
3.Postmenopausal women with postcoital bleeding.
4. Women with multiple partners.

Exclusion criteria-
1Age < 15 years.
2Age>70 years .
3Patients with no relevant complaints of abnormal discharge.

III. Procedure And Methodology

This prospective study was carried out on Department of Obstetrics & Gynaecology at BankuraSammilani Medical College, west Bengal period from1st Jan 2016 -30th Dec 2017. This was a two year hospital based prospective study. A total of 1000 patients were for in this study. The patients were in the age range of 15-45 and 45-70 years, having complaints like vaginaldischarge, bleeding per vagina or somethingcoming out per vagina. History and symptoms along with parity were recorded. Smears were taken by Post Graduate students usingmodified Ayres wooden spatula which wasinserted and rotated 3600 over cervix. Bothectocervix and endocervix were sampled. Slideswere prepared, labeled, fixed in 95% ethylalcohol immediately and subsequently stainedby Pap stain. After staining, slides were mounted with DPX (distrenedibutyl phthalatexylene), screened and reported by twocytopathologists according to The 2014Bethesdasystem.

IV. Result

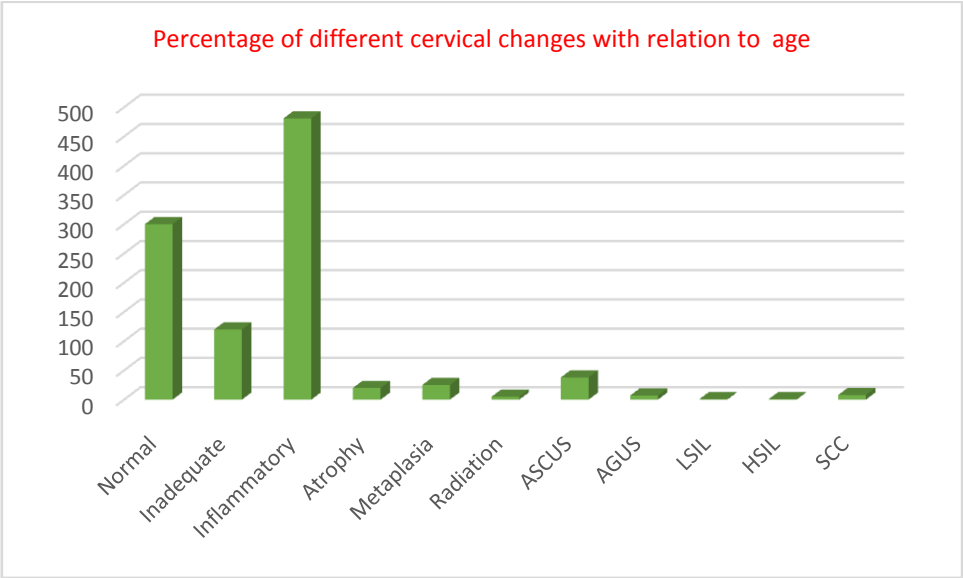
Amongst the 1000cervico-vaginal smears studied during Jan 2016 to December 2017 on patients,ranging from15 to 70 years and above age, 481 (48.1%) showed inflammatory lesion, 20 (2.0%) showed atrophy, 38 (3.8%) showed ASCUS, 1(0.1%) showed HSIL, 8(0.8%) showed SCC, 28 (2.8%) showed metaplasia, 5(0.5%) had Radiation changes, 120 (12 %)were inadequate and 300 (30 %) didn't show any remarkable pathology.

ASCUS has 40 (4.0 %) while AGUS has 0.7 % incidence. Ratio of inflammation and other lesions to premalignant and malignant ones was 938: 62 (93.8% and 6.2%).

Table 1: Relation of age with various non neoplastic and neoplastic pathology of cervix

Age group(years)	15-30	31-40	41-50	50-70	Total
Normal	100 140	50	10	300(30%)	
Inadequate	60	40	15	5	120(12%)
Inflammatory	258	210	12	1	481(48.1%)
Atrophy	0	1	8	11	20 (0.2%)
Metaplasia	5	15	2	3	25 (2.5%)
Radiation changes	0	0	2	3	5 (0.5%)
ASCUS	3	8	17	10	38(3.8%)
AGUS 00	1 0	1(0.1%)			
LSIL	0	0	1	0	1(0.1%)
HSIL	0 1	0	0	1(0.1%)	
SCC	0	3	2	3	8(0.8%)
Total	**426**	**418**	**110**	**46**	**1000**

Chart 1-



V. Discussion

With the changes in the life styles anddemographic profiles in developing countries,non-communicable diseases are emerging as animportant health problem which demandappropriate control program before they assumeepidemic propagation. Cancer has been a majorcause of morbidity and mortality. According to National Cancer Registry Programof India, cancers of uterine cervix and breast arethe leading malignancies seen in females ofIndia. There should be an effective massscreening program aimed at specific age groupfor detecting precancerous condition before theyprogress to invasive cancers[1,8,]

In a study conducted byHerbert and Smith (1999)[10], cervical premalignant lesions peaking the late 20s. Human papillomavirus (HPV) the causativeorganism of cervical cancer is mainly sexually transmitted,it follows that peak incidence of HPV infection like any other sexually transmitted infection will be shortly after commencement of sexual intercourse and CIN the precursorlesions of cervical cancer also peaks about a decade afterthe peak incidence of HPV infection and a decade earlierthan invasive cervical cancer. That is one of the reasons whyscreening for cervical cancer is recommended to start in theearly 20s. This is the age that screening is most likely to besuccessful in preventing cervical cancer. Screening beyond thisage will detect more advanced lesions or invasive cancer. Theimplication of this finding is that women in this environmentcommence screening for cervical cancer late, past the age atwhich premalignant conditions can be detected and treated. Itis an important public health concern because it implies thatcervical screening programs in countries like India wherewomen commence screening late may be ineffective becausemost preinvasive lesions might have been missed. The UnitedStates Preventive Services Task Force (USPSTF) and theAmerican Cancer Society (ACS) recommend that screeningfor cervical cancer should commence at the age of 21 years and should be done every 3 years.[11,12]

Globally, cervical cancer screening is discouraged beforethe age of 21 years because many consider it to be a wasteof scarce resources since cervical cancer is rare below thisage and screening below this age does not lead to decrease inthe incidence of cervical cancer. Screening before the age of 21 years is also associated with high false positive rates, lowerdetection, and may likely lead to unnecessary interventionwhich may cause more harm than good[11] In this study, womenwho were less 20 years of age constituted less than 1% of thewomen screened. Though presently India does not have acervical screening policy, this is in line with global practice

Our study showed that there were 946 (94.6%) benignand inflammatory and 60 (60.0%)were premalignantand malignant lesion, out of whichpremalignant lesions 72 (7.2%) that were ASCUSand AGUS. ASCUS progresses to LSIL, HSILAND SCC. AGUS progresses toadenocarcinoma[1,13,14] ASCUS was found to be highest in age group 41-50 years in the our study. ASCUS is to be labelled as ASCUS–reactive and ASCUS–SILwhich on biopsy turned out to be 83.6% positive for LSIL or HSIL[4,7,12] As percentage of ASCUSreported in other studies correlated with our findings[1,13,15] we should advocates PAP smearstudy and follow up at 31 years and above. There are various screening test for cervicalcancer like Pap smear, liquid Pap cytology,automated cervical screening techniques, visualinspection of cervix after Lugol's Iodine andacetic acid application, speculoscopy,cervicography.

Out of all these, exfoliative cytology has beenregarded as the gold standard for cervicalscreening programs.10 the role of HPV indevelopment of cervical cancer is provedbeyond doubt. If Pap screening is associatedwith HPV-DNA testing than we can increase the sensitivity. World Health Organization (1992)recommended screening every woman once inher lifetime at 40 years, 9 our results do not agreewith it as the incidence of ASCUS is also highduring 31-40 years. So if you catch them early at30 years of age then you can prevent furtherdevelopment of cancer. The American CancerSociety recommends that all women shouldbegin cervical cancer screening after 3 years ofbeginning coitus. It is also recommended every1-2 years, women who have crossed the age of30 years and have had 3 consecutive normal Papresults may be screened after 2-3 years. Society recommends that all women shouldbegin cervical cancer screening after 3 years of beginning coitus. It is also recommended every1-2 years, women who have crossed the age of 30 years and have had 3 consecutive normal Papresults may be screened after 2-3 years.

VI. Conclusion

The Pap smear is a sensitive and specific screening method for cervical cancer in our setting. We hope that documentation of baseline quality and services of cervical cytology will inform future qualityassurance programs and assist other laboratories in the development of similar programs in resourcelimited settingsWomen in this part of the country start cervical cancerscreening late in their reproductive life and this may be acontributing factor to the high burden of cervical cancerin developing countries. The prevalence of epithelial cellabnormalities was considerably higher than in many parts ofthe world. Efforts should be intensified to encourage womento screen at an earlier age. Equally important is that a methodthat reduces the frequency of screening should be introduced.

Conflicts of interest

Thereare no conflicts of interest.

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