

A STUDY OF CERVICAL CYTOLOGY AMONG INFERTILE WOMEN IN INDIAN SCENARIO

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ABSTRACT:

Background: Infertility is a widespread global health concern that impacts millions of people of reproductive age worldwide. Statistics indicate that around one in every six individuals of reproductive age experience infertility at some point in their lives.

Methods: From May 2022 to October 2022, the Department of Obstetrics and Gynaecology at the National Institute of Medical Sciences & Research in Jaipur conducted a prospective study within a hospital setting.

Results: On Liquid-based Pap smear 79.38% patients were present NILM, 11.88% patients were present ASCUS, 3.75% patients were presenting inflammatory and 3.75% patients were present HSIL & 1.25 of LSIL.

Conclusion: Our findings indicate that infertile patients, particularly those with tubal factor infertility, exhibit a higher propensity for cervical cytological abnormalities. Therefore, these patients could potentially benefit from increased cervical cytological screening.

Keywords: pap smear, cancer cervix, ASC-US, HSIL, LSIL.

INTRODUCTION:

Infertility is a global health issue affecting millions of people of reproductive age worldwide. Estimates suggest that approximately one in every six people of reproductive age worldwide experience infertility in their lifetime¹. The prevalence of infertility is comparable for high-, middle-, and low-income countries, indicating that it is a major health challenge globally.

The overall trend of infertility prevalence shows a downward trajectory in high-income and developed countries and an upward trend in others². In the United States, about 9% of men and about 11% of women of reproductive age have experienced fertility problems³. Fertility declines with age in both men and women, but the effects of age are much greater in women. In their 30s, women are about half as fertile as they are in their early 20s, and women's chance of conception declines significantly after age 35³. Male fertility also declines with age, but more gradually.

Infertility can be caused by male factors, female factors, a combination of male and female factors, or may be unexplained. For both women and men, lifestyle factors such as smoking, excessive alcohol intake, and obesity have been associated with higher chances of infertility⁴.

Women who are subfertile due to tubal pathology are expected to have a higher incidence of abnormal cervical smears. This is likely due to an increase in risky sexual behavior, especially in sexually active adolescents, who are at risk of contracting HPV and C. Trachomatis infections⁵. It's important to note that even years after an infection, the treatment of severe cervical pathology and subfertility caused by a tubal factor can have negative impacts on family planning.

MATERIAL AND METHODS :

The study was conducted in the Department Of Obstetrics & Gynaecology, National Institute Of Medical Sciences, Jaipur, Rajasthan, from May 2022 to October 2022.

Inclusion Criteria and Exclusion Criteria:

To participate in the study, women aged 21 to 44 who have not taken hormonal treatment within the last three months and are currently in the follicular phase of their cycle with primary or secondary infertility are eligible and must provide written and informed consent.

Women with pelvic inflammatory disease, diagnosed genital tract pathologies, or who have started hormonal treatment within three months, as well as those on immunosuppressive drugs or using any type of contraceptive method, are not eligible.

All eligible patients who gave consent were thoroughly interviewed and investigated for the etiology of infertility according to the inclusion and exclusion criteria.

A comprehensive medical history was meticulously collected, encompassing demographic data such as age and socioeconomic status, gynaecological and obstetric factors including menstrual history, age at marriage and first sexual intercourse, duration of infertility, age at first conception, and obstetric history. Additionally, personal and spouse histories were evaluated, with a particular focus on the presence of multiple sexual partners, sexually transmitted diseases, and the status of regular health check-ups, including liquid-based Pap smear tests.

The patient's history of previous infertility treatments was also thoroughly reviewed.

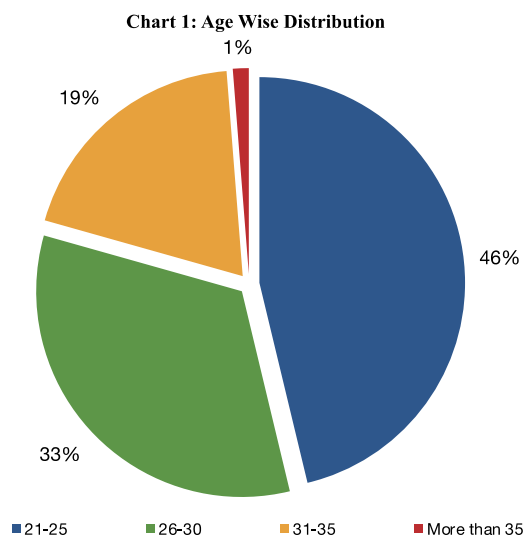
Upon patient enrollment, an exhaustive history was obtained from both partners. This was followed by a comprehensive physical examination, which included the assessment of vital parameters and a detailed systemic examination. A thorough gynaecological examination was also performed. Routine investigations were conducted, and a complete infertility work-up was carried out for both partners. Diagnostic procedures were performed as necessary, based on the etiology of infertility.

After obtaining written informed consent, a Pap smear was collected using a cervical broom. The sample was then immersed in 10-15 ml of Pap spin collection fluid, a buffered methanol preservative solution, contained in a vial. The Pap spin collection fluid and the collected material were subsequently sent to the laboratory for histopathological analysis.

OBSERVATIONS:

TABLE NO.1

Age group(Yrs)	No. of cases	Percentage(%)
21-25	74	46.25
26-30	53	33.13
31-35	31	19.38
More than 35	2	1.25
Total	160	100.00
Mean age±SD	26.85	



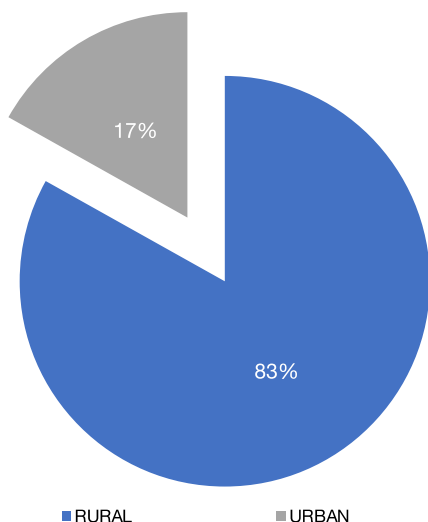
Mean age of the patients was 26.85years.

Maximum patients were in (46.25%) 21-25 Yrs age group.

TABLE NO.2 AREA-WISE DISTRIBUTION

Area	No. of cases	Percentage (%)
Rural	133	83.13
Urban	27	16.88
Total	160	100

Area-Wise Distribution

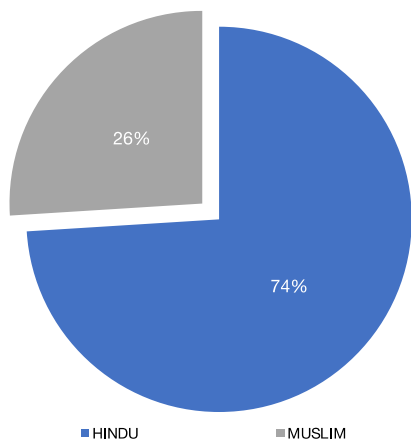


This study comprised 83.13% patients from rural areas and 16.88% from urban areas. As our hospital is located in a rural area of Jaipur city, Rajasthan, it is more accessible to patients residing in rural areas compared to those in urban areas.

TABLE NO.3 RELIGION-WISE DISTRIBUTION

Religion	No. of cases	Percentage (%)
Hindu	119	74.375
Muslim	41	25.625
Total	160	100

Religion Wise Distribution

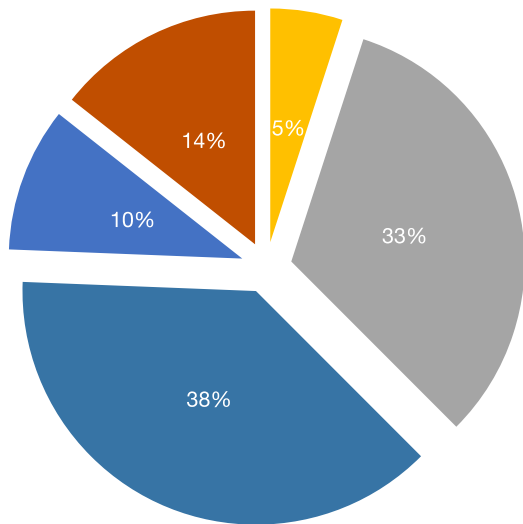


In this study, 74% of the patients were Hindu, while 26% were Muslim.

TABLE NO.4 SOCIO-ECONOMIC STATUS-WISE DISTRIBUTION

Socio-Economic Status	No.of Cases	Percentage(%)
Upper	8	5.00
Upper-Middle	52	32.50
Lower-Middle	61	38.13
Upper-Lower	16	10.00
Lower	23	14.38
Total	160	100

Socio-economic status-wise distribution



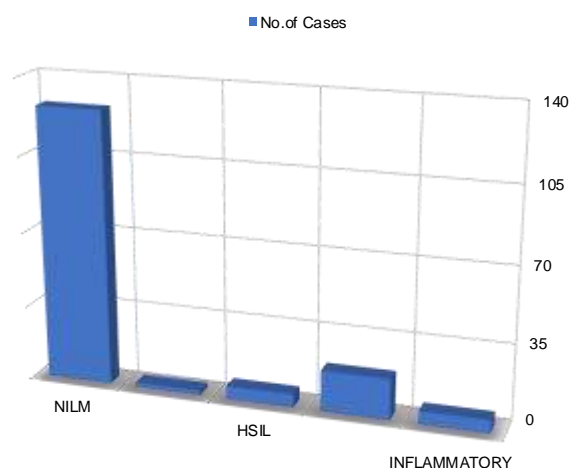
■ UPPER ■ UPPER-MIDDLE ■ LOWER-MIDDLE ■ UPPER-LOWER ■ LOWER

Out of 160 cases, 38.13% of patients belonged to the lower middle class, followed by 32.50% from the upper middle class, 14.38% from the lower class, 10% from the upper-lower class, and only 5% from the upper class.

TABLE NO.4 CASES-WISE DISTRIBUTION OF LIQUID BASE PAP SMEAR GRADING

Liquid base Pap smear	No. of cases	Percentage (%)
NILM	127	79.38
LSIL	2	1.25
HSIL	6	3.75
ASCUS	19	11.88
Inflammatory	6	3.75
Total	160	

Cases-wise distribution of Liquid base Pap smear grading



On Liquid based Pap smear grading 79.38 % patients were present NILM, 11.88 % patients were present ASCUS, 3.75% patients were present inflammatory and 3.75%, 1.25% patients were present HSIL & LSIL.

DISCUSSION:

The aim of this study is to detect premalignant cervical changes with different etiologies in infertile women & to compare the different types of cervical cytological findings according to aetiology in infertile women & to decrease morbidity and mortality of cervical cancer with the help of early screening methods of cervical cytology (liquid based, thin layer technology).

This hospital-based descriptive observational study was carried out at the Department of Obstetrics and Gynecology, NATIONAL INSTITUTE OF MEDICAL SCIENCES & RESEARCH, Jaipur. 160 women of the reproductive age group who were in the follicular phase of their cycle and had primary and secondary infertility prior to hormonal treatment (not taken hormonal treatment within 3 months) were included in this study.

The mean age of patients was 26.85 Yrs. Maximum patients (46.25%) were 21-25 Yrs age group.

Out of 160 cases, 83.13 % of patients were from rural areas and 16.88% of patients were from urban areas.

Out of 160 cases, 74.37 % of patients were Hindu and 25.62% of patients were Muslims.

Out of 160 cases, 38.13 % of patients were lower middle class followed by 32.50% of patients were upper middle class, 14.38% of patients were lower class, 10% of patients were upper-lower class and only 5% patients were upper class

On Liquid based Pap smear 79.38% patients were present NILM, 11.88% patients were present ASCUS, 3.75% patients were presenting inflammatory and 3.75% patients were present HSIL & 1.25 of LSIL.

Nasrin Jalilian et.al⁶ conducted a two-phase retrospective study involving infertile women. The first phase spanned from March 2007 to March 2008 and included 400 subjects, while the second phase ran from March 2011 to March 2012 with 182 subjects. The cervical cytology was normal in 97.8% of the cases (569 out of 582). In 2007, 390 reports were normal (97.5%), and in 2011, 179 cases were normal (98.4%). There were 10 cases (1.7%) where the Pap smear result was unsatisfactory, and only 3 cases (0.5%) were abnormal. Most unsatisfactory results were reported in 2007 (9 out of 10 cases). Abnormal epithelial cells were identified as ASCUS (one patient) and LSIL (two cases). The only ASCUS report was in 2011, and one LSIL was reported in 2007 and another in 2011.

CONCLUSION:

Our findings indicate that infertile patients, particularly those with tubal factor infertility, exhibit a higher propensity for cervical cytological abnormalities. Therefore, these patients could potentially benefit from increased cervical cytological screening. Given these findings, it is crucial to raise awareness about the importance of cervical cancer screening programs. Further research involving a larger number of patients is recommended to reach a more definitive conclusion

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