Section: Obstetrics and Gynaecology

Original Research Article

COMPARISON OF VAGINAL VERSUS ORAL ESTRADIOL ADMINISTRATION IN IMPROVING THE VISUALISATION OF TYPE 3 TRANSFORMATION ZONE (DURING COLPOSCOPY") A PROSPECTIVE OBSERVATIONAL STUDY

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Received : 20/03/2025
Received in revised form : 07/05/2025
Accepted : 26/05/2025

Keywords:
Colposcopy, CA Cervix, Endocervical curettage, Pap Smear, HPV Vaccine, Via Vili.

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DOI: 10.47009/jamp.2025.7.3.177

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2025; 7 (3); 921-926

ABSTRACT

Background: Cervical cancer is a major cause of mortality from cancer among women, especially in the developing world. Prevalence of cervical cancer has decreased significantly with the use of screening methods like the Pap test [Ref.No-1]. Colposcopy is an important diagnostic tool in the evaluation of patients with abnormal Pap smears. During a colposcopy procedure, it is crucial to visualize the entire transformation zone (TZ) as almost all manifestations of cervical carcinogenesis occur there. In roughly 10-20% of all patients, the entire transformation zone is not completely visualized [Ref.No-2–4], rendering the colposcopic examination incomplete and inconclusive. The aim is to compare the efficacy of vaginal versus oral estradiol administration in overcoming incomplete colposcopy. To compare the efficacy of vaginal versus oral oestradiol administration in overcoming inadequate colposcopy among women attended OPD in Dept of OBG Government Dharmapuri Medical College. **Materials and Methods:** Our hospital is a tertiary care hospital with 420 beds and a teaching institute. The hospital runs 24*7 emergency services for all major and minor ailments. The OG department runs daily outpatient services and also has services for inpatient management. The department also has special clinics for fertility and other gynaecological malignancies. The department runs operation theatres on a daily bases and conducted major surgeries for all major gynaecological ailments and runs 24*7 labour rooms and C-section services. **Result:** We could reach around 84 participants who fitted the inclusion criteria (with abnormal symptoms like profuse white discharge, post coital bleeding, intermenstrual bleeding or post-menopausal bleeding who attended the OG department of GDMCH). All patients agreed to participate in the study thus accounting for a response rate of 100%. Table 1 depicts the socio-demographic characteristics of the study participants. We could see that more than half (57%) of the study participants were belonging to the age group of >45 years, with a mean age of 48.4 (8.3) years. Almost half (51%) of the study participants were illiterate or studied up to primary school. Almost 3/4th of the study participants were belonging to the lower socioeconomic class. Almost everyone (95%) did not have any family history of cervical cancer before. Almost 4/5th were multiparous. **Conclusion:** With respect to the comorbidity at presentation, we found that the around 10% did not have any comorbidity, while the most common comorbidity was HTN (49%), followed by anemia (45%), associate with signs and symptoms and outcome of the (p-value) results.

INTRODUCTION

Colposcopy is an important diagnostic tool in the evaluation of patients with abnormal PAP smears. However in 10 to 20% transformation zone/ squamocolumnar junction is not completely visualised and these patients are deemed to have an inadequate colposcopy examinations. Cone biopsy is necessary for further diagnosis and treatment in these patients. Conization surgery carries a high risk of morbidity and has the potential for bleeding, infection, and an ineffective cervix.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Numerous methods are utilised to enhance the visualisation of the transformation zone in order to reduce the need for conization and the difficulties that come along with it, including the use of endocervical speculums, osmotic dilatation, and medications like misoprostol and oestradiol. In this study, the effectiveness of vaginal versus oral oestradiol in preventing non-visualization of the transformation zone was compared. Because it's possible to overlook significant precancerous lesions that could develop into invasive cervical cancer (ICC) before being discovered, the type 3 transformation zone of the cervix (TZ) presents a problem in cervical cancer screening with visual techniques.[1-3]

The most crucial area of the cervix to be evaluated is the TZ since that is where the majority of cervical precancers and ICC start. The TZ is the region between the old and the new squamocolumnar junctions (SCJs). Squamous and columnar epithelium meet at the SCJ. The SCJ is pushed into the endocervical canal as a woman ages.[4] Type 1 SCJs are those that can be seen in 360 degrees and are situated at the ectocervix. Type 2 SCJs are those that are partially or completely in the endocervical canal but can be seen in 360 degrees with or without speculum manipulation. Type 3 SCJs are those in which the entire or a portion of the endocervical canal cannot be seen from all angles. Visual examination of the cervix using acetic acid (VIA) and Lugol's iodine (VILI) is a component of cervical cancer visual screening techniques.[5] These techniques don't require expensive equipment, are simple to use, and don't demand much money. In low- and middle-income nations (LMICs), the world health organisation (WHO) suggests VIA as the primary cervical cancer screening test. Magnifying tools like colposcopy or digital cervicography can improve the visual screening techniques even more (DC).

According to research, women with Type 3 TZs who receive routine visual cervical cancer screenings have a four- to five-fold higher chance of developing ICC than those who receive routine non-visual screenings like cytology.[6] If a Type 3 TZ's visual screening results are negative, the woman is reassured and goes home; however, it's possible that she has a pre-invasive lesion that was not seen. Endocervical curettage is frequently used in high-income countries to sample the fraction of Type 3 TZs that have been pushed into the endocervical canal in women undergoing cervical cancer screening. Because pathologists in LMICs lack the necessary tools, it is difficult to acquire pathological results from endocervical samples. The screening paradigm will eventually change from the detection of cervical precancer to oncogenic HPV with the advent of human papilloma virus (HPV) DNA testing.[7]

Despite being an important issue, there is paucity of studies that has ventured on the clinical use of employing vaginal versus oral estradiol administration in improving the visualisation of type 3 transformation zone during colposcopy, especially from a south Indian setting. Thus, we decided to undertake this study, to compare the efficacy of vaginal versus oral estradiol administration in overcoming incomplete colposcopy among women attending the gynecology Dept of OBG Government Dharmapuri Medical College.

Aims and Objectives

To compare the efficacy of vaginal versus oral estradiol administration in overcoming incomplete colposcopy

MATERIALS AND METHODS

Inclusion Criteria

The selection of women will be done by the following criteria:

1. Age: 20-60 years
2. Patients with abnormal symptoms like profuse white discharge, post coital bleeding, intermenstrual bleeding or post menopausal bleeding.
3. Patients with clinically unhealthy cervix diagnosed by speculum examination like cervical erosion, cervicovaginitis, cervical polyp, condylomas etc.
4. Patients with pap smears showing dysplasia

Exclusion Criteria

1. Women with age > 60 years and < 20 years.
2. Patients with bleeding at the time of examination.
3. Women with frank invasive cancer
4. Women who underwent total hysterectomy
5. Women with hypertensive and coagulation disorder
6. Women with history of breast cancer
7. Pregnant women

RESULTS

Table 1: Sociodemographic characteristics of the study participants (N=84)

Characteristics	Frequency (%)
Age group	
35-40 years	15 (17.8)
41-45 years	25 (29.7)
46-50 years	30 (35.7)
51-55 years	14 (16.7)
Education	
Illiterate/Primary school	43 (51.2)
Secondary school	23 (27.3)
Graduate	10 (11.9)

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Post graduate/Professional	8 (9.5)
Socioeconomic status	
Lower	57 (67.8)
Middle	19 (22.6)
Upper	8 (9.5)
Family history	
No	80 (95.2)
Yes	4 (5.3)
Parity	
1st gravida	12 (14.3)
2nd gravida	50 (59.5)
3rd gravida	18 (21.4)
4th gravida	4 (4.7)
White discharge	
Yes	69 (82.1)
No	15 (17.9)
Post coital bleeding	
Yes	16 (19.1)
No	68 (80.9)
Inter menstrual bleeding	
Yes	26 (30.9)
No	58 (69.1)
Menopausal status	
Yes	7 (8.3)
No	77 (91.7)
Cervical erosion	
Yes	10 (11.9)
No	74 (88.1)
Cervico-vaginitis	
Yes	26 (34.5)
No	58 (65.5)
Cervical polyp	
Yes	18 (21.4)
No	66 (78.6)
Condyloma	
Yes	11 (13.1)
No	73 (86.9)

* Patients under 20 to 34 years with inadequate colposcopy results were not identified in the OPD of Dept of OBG Government Dharmapuri Medical College hospitals.

We could reach around 84 participants who fitted the inclusion criteria (with abnormal symptoms like profuse white discharge, post coital bleeding, intermenstrual bleeding or post-menopausal bleeding who attended the OG department of GDMCH). All patients agreed to participate in the study thus accounting for a response rate of 100%. Table 1 depicts the socio-demographic characteristics of the study participants. We could see that more than half (57%) of the study participants were belonging to the age group of >45 years, with a mean age of 48.4 (8.3) years. Almost half (51%) of the study participants were illiterate or studied up to primary school. Almost 3/4th of the study participants were belonging to the lower socioeconomic class. Almost everyone (95%) did not have any family history of cervical cancer before. Almost 4/5th were multiparous. With respect to the symptom of presentation, white discharge PV was the commonest, followed by inter-menopausal bleeding. With respect to the diagnosis at representation, we observed that majority had cervical vaginitis, followed by polyps [Table-1].

Table 2: Distribution of comorbidities among the study participants (N=76)

Comorbidity	N (%)
Anaemia	38 (45.2)
DM	32 (38.1)
HTN	41 (48.7)
No comorbidity	8 (9.5)

With respect to the comorbidity at presentation, we found that the around 10% did not have any comorbidity, while the most common comorbidity was HTN (49%), followed by anemia (45%) [Table 2]

Table 3: Presenting symptoms and signs of the study participants (N=84)

Characteristics	Vaginal estradiol	Oral estradiol	P value
Age			
35-40 years	8 (53.3)	7 (46.7)	0.67
41-45 years	13 (52.0)	12 (48.0)	
46-50 years	13 (43.3)	17 (56.7)	

ISSN (O): 2687-5365; ISSN (P): 2753-6556

51-55 years	8 (57.1)	6 (42.9)	
Education			
Illiterate/Primary school	21 (48.8)	22 (51.2)	0.79
Secondary school	9 (39.1)	14 (60.9)	
Graduate	6 (60.0)	4 (40.0)	
Post graduate/Professional	6 (75.0)	2 (25.0)	
Socioeconomic status			
Lower	27 (47.4)	30 (52.6)	0.56
Middle	12 (63.1)	7 (36.9)	
Upper	3 (37.5)	5 (42.5)	
Family history			1.00
No	40 (50.0)	40 (50.0)	
Yes	2 (50.0)	2 (50.0)	
Parity			
1st gravida	7 (58.3)	5 (41.7)	0.78
2nd gravida	28 (56.0)	22 (44.0)	
3rd gravida	6 (40.0)	9 (60.0)	
4th gravida	1 (25.0)	3 (75.0)	
White discharge			0.39
Yes	33 (47.8)	36 (52.2)	
No	9 (60.0)	6 (40.0)	
Post coital bleeding			0.24
Yes	6 (37.5)	10 (62.5)	
No	36 (52.9)	32 (47.1)	
Inter menstrual bleeding			
Yes	16 (61.5)	10 (38.5)	0.18
No	26 (44.8)	32 (55.2)	
Menopausal status			
Post menopausal	3 (42.8)	4 (57.2)	0.89
Pre menopausal	39 (50.6)	38 (49.4)	
Cervical erosion			
Yes	6 (45.9)	4 (54.1)	0.35
No	36 (60.8)	38 (39.2)	
Cervico-vaginitis			
Yes	12 (46.1)	14 (53.9)	0.58
No	30 (51.7)	28 (48.3)	
Cervical polyp			
Yes	6 (48.8)	8 (51.2)	0.78
No	36 (51.4)	34 (48.6)	
Condyloma			
Yes	7 (63.7)	4 (36.3)	0.16
No	35 (47.7)	38 (52.3)	

With respect to the comparison of various independent variables across the study groups (vaginal vs oral oestradiol) we found that the groups were comparable (non-significant p-value >0.05) with respect all aspects thus making the groups similar in distribution of independent variables. [Table 3]

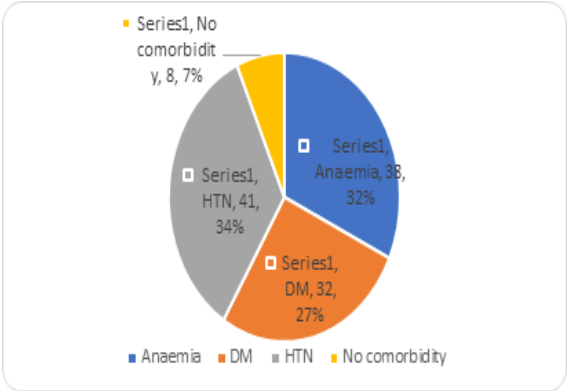

Figure 1: Distribution of comorbidity among the study participants

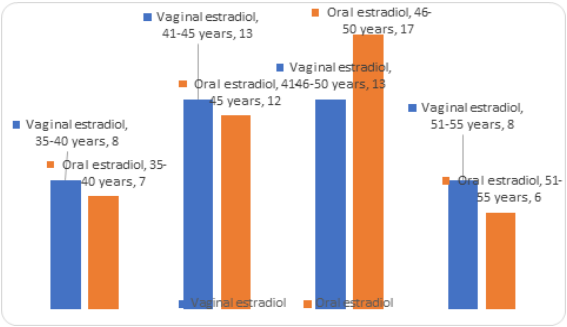

Figure 2: Association of age across study groups

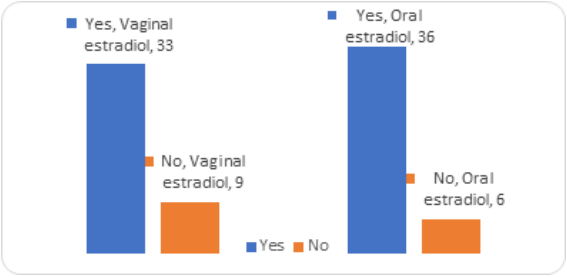

Figure 3: Association of white discharge across study groups

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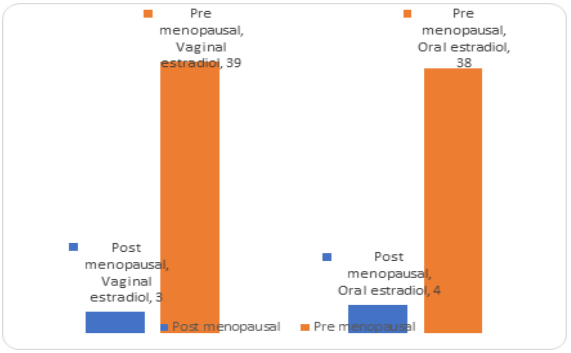

Figure 4: Association of postcoital bleeding across study groups

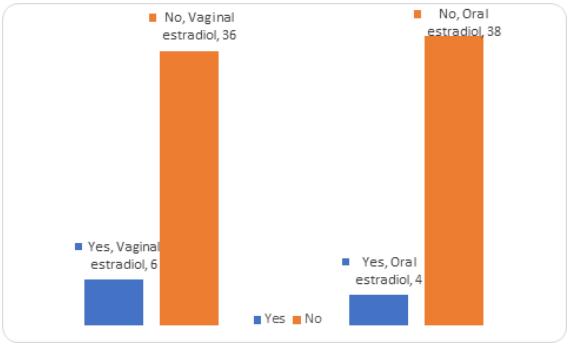

Figure 5: Association of cervical erosion across study groups

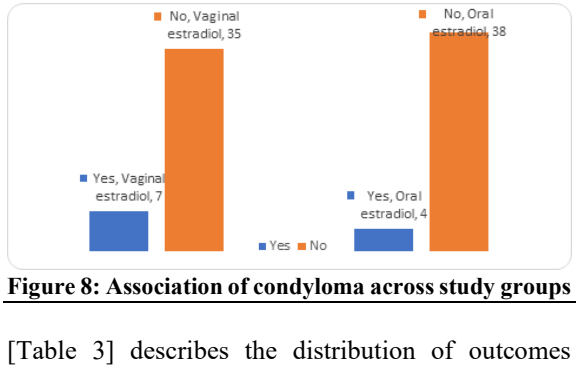

Figure 8: Association of condyloma across study groups

[Table 3] describes the distribution of outcomes across the study groups. With respect to the distribution of drug efficacy, we observed that there was a statistically significant association (p-value 0.03), with vaginal estradiol showing satisfactory colposcopy on repeat exams. With respect to adverse events, we observed that there was no statistically significant results. With respect to Improved visualisation of Zone 3 TZ, we observed that vaginal estradiol showed improved visualisation when compared to oral estradiol, which was found to be statistical significance. (p-value 0.05) [Table 4]

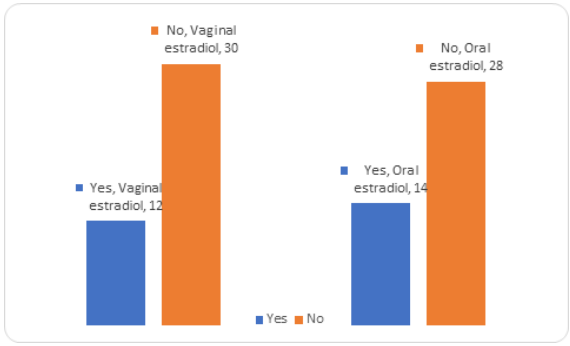

Figure 6: Association of cervico vaginits across study groups

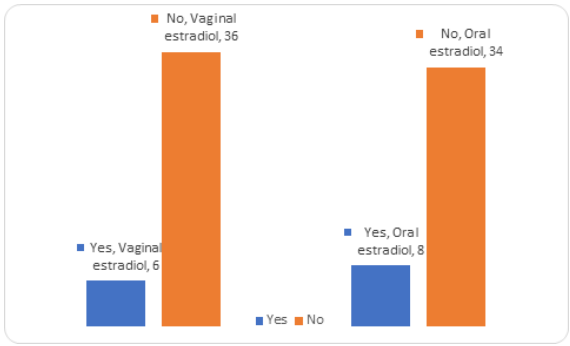

Figure 7: Association of cervical polyp across study groups

Table 4: Association between outcomes across the study groups, N=84

	Total	Vaginal estradiol	Oral estradiol	P value
Drug efficacy				
Satisfactory colposcopy on repeat exam	53	34 (64.1)	19 (35.9)	0.03
Unsatisfactory colposcopy on repeat exam	31	8 (25.8)	23 (74.2)	
All adverse effects				
Yes	16	10 (62.5)	6 (37.5)	0.16
No	68	32 (47.1)	36 (52.9)	
Improved visualisation of Zone 3 TZ				
Yes	34	20 (58.8)	14 (41.2)	0.05
No	50	22 (44.0)	28 (46.0)	

DISCUSSION

We basically did a prospective follow-up cohort study in the Department of Obstetrics and Gynaecology in a tertiary care setting to compare the efficacy of vaginal versus oral oestradiol administration in overcoming incomplete colposcopy during a time period of 1 year among women admitted to the Department of Obstetrics and Gynaecology, Government Dharmapuri Medical College. In our study, we estimated the clinical spectrum of women with abnormal symptoms like profuse white discharge, post-coital bleeding, intermenstrual bleeding or post-menopausal bleeding. We also evaluated them clinically to identify unhealthy cervix through speculum examination and diagnose cases such as cervical erosion, cervical vaginitis, cervical polyp, condylomas etc. As it was identified that difficulty in visualizing cervix through colposcopy remained a main challenge for clinicians in dealing cervical cancers. Thus, we selected all patients with abnormal

ISSN (O): 2687-5365; ISSN (P): 2753-6556

symptoms like profuse white discharge, post coital bleeding, intermenstrual bleeding or post-menopausal bleeding and compared the efficacy of the commonly used oestradiol in both the vaginal and oral forms, to overcome the difficulty. Existent research on this area are mainly focused in western settings, and there is a lack of literature from India, specifically from south Indian settings, where we expect that cancer cervix is the second most common cause of mortality among women. Thus taking the varied burden of the disease into consideration and the advent of newer diagnostic modalities and difficultly in using them on a day to day basis, we decided to compare the vaginal versus oral oestradiol administration in improving the visualisation of type 3 transformation zone (during colposcopy) among women with symptoms suggestive of cervical cancer attending OG OPD in Government Dharmapuri Medical College.

In our study where we included 84 cases (42 into each group), we obtained results where more than half (57%) of the study participants were belonging to the age group of >45 years, with a mean age of 48.4 (8.3) years. Almost half (51%) of the study participants were illiterate or studied up to primary school. Almost 3/4th of the study participants were belonging to the lower socioeconomic class.[8-10]

CONCLUSION

To conclude, in our study we found that around 4/5th of the participants had complaints of white discharge an 1/3rd had inter menstrual bleeding. With trespect to diagnosis, the commonest was cervical vaginitis. With respect to the distribution of drug efficacy, we observed that there was a statistically significant association (p-value 0.03), with vaginal estradiol showing satisfactory colposcopy on repeat exams. With respect to adverse events, we observed that there were no statistically significant results. With respect to Improved visualisation of Zone 3 TZ, we observed that vaginal estradiol showed improved visualisation when compared to oral estradiol, which was found to be statistical significance. (p-value 0.05).

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ISSN (O): 2687-5365; ISSN (P): 2753-6556