

Original Research

Analysis of expression of ER and PR in patients with PMB

Dr Lalita Iyer, Dr Ronita Swamy

Senior Resident, SMC & H, Chennai

ABSTRACT:

Background: The present study was conducted for evaluating the expression of ER and PR in PMB (Post-menopausal women) patients. **Materials & methods:** A total of 100 patients were enrolled. Complete demographic and clinical details of all the patients was recorded. Samples were obtained and were subjected to immunohistochemical analysis. ER and PR expression was recorded. Correlation of etiopathogenesis of PMB with ER and PR expression was evaluated. Assessment of results was done using SPSS software. **Results:** ER expression was positive among glandular component in 94 percent of the patients while it was positive in stromal component of 91 percent of the patients. Correlation of ER expression and PR expression with aetiopathogenesis of PMB yielded non-significant results. **Conclusion:** PMB is accompanied by enhanced expression of ER and PR receptors.

Key words: PMB, ER, PR

Received: 2 February, 2022

Accepted: 10 February, 2022

Corresponding author: Dr Lalita Iyer, Senior Resident, SMC & H, Chennai

This article may be cited as: Iyer L, Swamy R. Analysis of expression of ER and PR in patients with PMB. Int J Res Health Allied Sci 2022; 8(1):142-144.

INTRODUCTION

Menopause occurs when the ovaries cease making estrogen, and the patient is no longer ovulatory. The level of the follicle-stimulating hormone is elevated after menopause, as the hypothalamic-pituitary-ovarian axis attempts to stimulate ovulation despite the ovaries no longer being able. A woman is labeled menopausal if she has gone twelve months without menses.¹⁻³ After a woman is postmenopausal, further vaginal bleeding is no longer considered normal. The differential diagnosis of postmenopausal bleeding includes many benign and malignant conditions, the most common of which is atrophy, but the most concerning possible etiology is endometrial cancer. As with most malignancies, early diagnosis may lead to a better prognosis. Therefore, a postmenopausal woman with vaginal bleeding should be promptly and appropriately evaluated.⁴

Estrogen receptor (ER), progesterone receptor (PR) are mostly used for assessment of malignant pathologies. It is standard practice to determine both estrogen and progesterone receptor status at the time of diagnosis for definitive surgical therapy.^{5,6} Hence;

the present study was conducted for evaluating the expression of ER and PR in PMB patients.

MATERIALS & METHODS

The present study was conducted for evaluating the expression of ER and PR in PMB patients. A total of 100 patients were enrolled. Complete demographic and clinical details of all the patients was recorded. Samples were obtained and were subjected to immunohistochemical analysis. ER and PR expression was recorded. Correlation of etiopathogenesis of PMB with ER and PR expression was evaluated. Assessment of results was done using SPSS software.

RESULTS

A total of 100 PMB patients were enrolled. Mean age of the patients was 51.8 years. Etiopathogenesis was hyperplasia and poly in 20 percent and 50 percent of the patients. Malignant neoplasm was detected in 30 percent of the patients. ER expression was positive among glandular component in 94 percent of the patients while it was positive in stromal component of 91 percent of the patients. Correlation of ER

expression and PR expression with aetiopathogenesis of PMB yielded non-significant results.

Table 1: Distribution of PMB patients according to etiopathogenesis

Histopathological findings		Number of patients	Percentage
Hyperplasia		20	20
Polyp	Endometrial	22	22
	Cervical	28	28
Malignant	Endometrial carcinoma	12	12
	Cervical carcinoma	18	18
Total		100	100

Table 2: ER and PR expression among patients with postmenopausal bleeding

Expression		Positive		Negative		Total	
		Number	Percent age	Number	Percent age	Number	Percent age
E R	Glandular component	90	90	10	10	100	100
	Stromal component	85	85	15	15	100	100
P R	Glandular component	94	94	6	6	100	100
	Stromal component	91	91	9	9	100	100

DISCUSSION

Postmenopausal uterine bleeding, either spontaneous or that related to ovarian hormone replacement therapy (HRT) or selective estrogen receptor modulator (SERM) use (eg, tamoxifen adjuvant therapy for breast carcinoma) collectively results in a substantial number of patient encounters. These encounters directly involve physicians and other clinicians in the Departments of Family Medicine, Internal Medicine, Obstetrics and Gynecology, and Oncology and include physicians, nurse practitioners, and other midlevel clinicians. The clinical problem also indirectly affects medical clinicians and resources in the Departments of Radiology and Pathology, particularly because of the use of endometrial sampling and imaging of the uterus. Consequently, recommendations have been developed considering this diverse spectrum of practitioners and departments.⁷⁻⁹ Hence; the present study was conducted for evaluating the expression of ER and PR in PMB patients.

A total of 100 PMB patients were enrolled. Mean age of the patients was 51.8 years. Etiopathogenesis was hyperplasia and poly in 20 percent and 50 percent of the patients. Malignant neoplasm was detected in 30 percent of the patients. ER expression was positive among glandular component in 94 percent of the patients while it was positive in stromal component of 91 percent of the patients. Correlation of ER expression and PR expression with aetiopathogenesis of PMB yielded non-significant results. Vani S et al determined the steroid receptor expression in HRT-

exposed endometrium in relation to disturbances of bleeding patterns. Prospective observational study in a tertiary referral menopause clinic in Western Australia. Thirty-eight outpatient endometrial biopsies (seven from women not on HRT, 31 from HRT users) were collected from 21 postmenopausal women during and outside bleeding episodes. Eleven women provided multiple biopsies. They performed an immunohistochemical analysis of endometrial glandular, stromal, epithelial, perivascular and endothelial expression of progesterone receptor (PR), glucocorticoid receptor (GR), androgen receptor (AR), estrogen receptors alpha and beta (ERalpha and ERbeta) and studied their relationship to bleeding patterns. In HRT users, during a bleeding episode, there was a trend (non-significant) towards a decrease in PR and an increase in GR in endometrial glandular cells. No differences were observed in AR and ER expression. They have been unable to demonstrate significant differences in steroid receptor expression in endometrium of women using HRT who report unscheduled bleeding episodes. These observations differ from the endometrial steroid receptor expression observed with normal menstruation and long-term progestogen-only administration, suggesting that different local mechanisms are involved in HRT-related unscheduled bleeding.¹⁰

CONCLUSION

PMB is accompanied by enhanced expression of ER and PR receptors.

REFERENCES

- Practice Bulletin No. 149: Endometrial cancer. *Obstet Gynecol.* 2015 Apr;125(4):1006-1026.
- Cicinelli E, Resta L, Nicoletti R, Zappimulso V, Tartagni M, Saliani N. Endometrial micropolyps at fluid hysteroscopy suggest the existence of chronic endometritis. *Hum Reprod.* 2005 May;20(5):1386-9.
- Practice Bulletin No. 141: Management of Menopausal Symptoms: Correction. *Obstet Gynecol.* 2018 Mar;131(3):604.
- Parkash V, Fadare O, Tornos C, McCluggage WG. Committee Opinion No. 631: Endometrial Intraepithelial Neoplasia. *Obstet Gynecol.* 2015 Oct;126(4):897.
- van Hunsel FP, Kampschöer P. [Postmenopausal bleeding and dietary supplements: a possible causal relationship with hop- and soy-containing preparations]. *Ned Tijdschr Geneesk.* 2012;156(41):A5095.
- Harirchi I, Kolahdoozan S, Karbakhsh M, Chegini S, Mohseni SM, Montazeri A et al. Twenty years of breast cancer in Iran: downstaging without a formal screening program. *Ann Oncol.* 2011;22(1):93-7.
- Ghaemian N, Siadati S, Nikbakhsh N, Mirzapour M, Askari H, Asgari S. Concordance rate between fine needle aspiration biopsy and core needle biopsy in breast lesions. *IJP.* 2013;8(4):241-6.
- Kolahdoozan S, Sadjadi A, Radmard AR, Khademi H. Five common cancers in Iran. *Arch Iran Med.* 2010;13(2):143-6
- Valenzano Menada M, Costantini S, Moiola M, et al. Evaluation of endometrial thickness in hormone

- receptor positive early stage breast cancer postmenopausal women switching from adjuvant tamoxifen treatment to anastrozole. *Breast*. 2008 Dec;17(6):631–6.
10. Chalas E, Costantino JP, Wickerham DL, et al. Benign gynecologic conditions among participants in the Breast Cancer Prevention Trial. *Am J Obstet Gynecol*. 2005 Apr;192(4):1230–9.
 11. Runowicz CD, Costantino JP, Wickerham DL, et al. Gynecologic conditions in participants in the NSABP breast cancer prevention study of tamoxifen and raloxifene (STAR) *Am J Obstet Gynecol*. 2011 Dec;205(6):535.e1.
 12. Vani S, Critchley HO, Fraser IS, Hickey M. Endometrial expression of steroid receptors in postmenopausal hormone replacement therapy users: relationship to bleeding patterns. *J Fam Plann Reprod Health Care*. 2008 Jan;34(1):27-34.