

Endometrial Aromatase and Effect on Endometrial Implantation in Postmenopausal Patients

Shawky Badawy*

Department of Obstetrics and Gynecology, Upstate Medical University, Syracuse, New York

***Corresponding Author:** Shawky Badawy, Department of Obstetrics and Gynecology, Upstate Medical University, Syracuse, New York.

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Abstract

Endometrial aromatase is an enzyme that is accredited for the local production of estrogens in endometriotic tissues. It converts testosterone to estradiol and androstenedione to estrone. In the treatment of endometriosis, the use of aromatase inhibitors adds another line of treatment that acts directly on this disease and alleviates the symptoms and improves the recovery of these patients.

Keywords: Endometrial; Aromatase; Implantation; Postmenopausal

Introduction

Aromatase is also present in other tissues as fat, ovaries, brain. This can lead to estrogen synthesis and lead to various complications in postmenopausal woman.

Aromatase inhibitors used for treatment of endometriosis are an excellent addition, in order to inhibit the secretion of estrogens locally from endometriosis tissues. Thus, it is a very important line of treatment for postmenopausal endometriosis.

Postmenopausal endometriosis

Endometriosis is a disease that can occur in menopause and this must be taken into consideration in treating post-menopausal women complaining of pelvic pain.

Postmenopausal endometriosis was first reported by Edgar Haydon in 1942 in a 78-year-old woman [3]. Kempers in 1960, [4] reported 136 women with postmenopausal endometriosis. Pun-

nonen in 1980 reported 11 cases [5]. The incidence of postmenopausal endometriosis is 2-5% of women between 55-95 years old.

In the treatment of postmenopausal endometriosis, we have to inhibit the source of estrogens. Aromatase inhibitors are essential line of treatment in order to inhibit the local estrogen secretion by aromatase. In addition, therapeutic postmenopausal estrogen has to be discontinued. In order to prevent osteoporosis in this postmenopausal population, patients have to be given other support for their bone metabolism.

Postmenopausal endometriosis is underdiagnosed, because of misunderstanding that women at this stage are hypoestrogenic. We have to change our understanding, since estrogen post menopause results from the estrogen intake to treat the hypoestrogenic status. In addition, endometriotic lesions produce estrogen as a result of the activity of aromatase in the endometriosis tissue. The aromatase converts testosterone to estradiol and that will benefit endometriosis.

Endometriosis post menopausally may result from pre-menopausal endometriosis that continues to grow since it can make its own estrogen depending on its aromatase. Thus, a patient with a history of endometriosis, who entered menopause might benefit from progesterone and aromatase inhibitors, thus alleviating her symptoms.

Management of post-menopausal endometriosis

It is important to make the diagnosis. These patients complain of pain. This pain may be in the pelvic region. It also could be abdomen and pelvic region. Laparoscopy will confirm the diagnosis because of the lesions and biopsy taken for pathology evaluation.

Endometriosis may go away after the onset of menopause. However, with the use of estrogen treatment to alleviate the symptoms of hot flashes, this will stimulate the growth of endometriosis implants and so this starts the recurrence of the disease process.

In some patients endometriosis recurs without any hormonal treatment of the menopausal symptoms. This is related to aromatase in the endometriosis cells. The aromatase converts testosterone to estradiol and converts androstenedione to estrone. So, these estrogens stimulate the growth of the endometrial implants.

The use of aromatase inhibitors for treatment of postmenopausal endometriosis, decreases estradiol levels significantly and the pain decreases and then disappears.

The American Society of Reproductive Medicine classified endometriosis into four stages depending on the extent of the disease.

- **Stage 1:** Minimal is superficial disease in the pelvis and abdominal cavity peritoneal surface.
- **Stage 2:** Mild is the case in which ovarian endometriomas are present
- **Stage 3:** The condition of endometriomas, more endometriosis lesions and adhesions.
- **Stage 4:** In addition to peritoneal involvement, other organs are affected as bowel, bladder and lungs

Conclusion

Treatment of postmenopausal Endometriosis

Studies have shown that the use of aromatase inhibitors is very effective in relieving the pain associated with this disease. The main drawback is the negative effect on the bone mass, leading to bone fractures. It is recommended that the treatment with aromatase inhibitors should be associated with bisphosphonate therapy.

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