

REVIEW ARTICLE

Pharmacological and Non-Pharmacological Measures in Management of Endometriosis

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ABSTRACT

Endometriosis is a benign disease of the female genital system, characterized by the appearance of endometrial tissue outside the uterus. Endometriosis commonly affects the women of 25-29 age group. Main symptoms are pelvic pain and infertility. Many studies have suggested that endometriosis has a profound but negative impact not only on their social life but also on their personal life. Quantitative studies have concluded that endometriosis symptoms can negatively and substantially impact Quality of life and daily activities such as household tasks, energy and vitality and socializing as well as physical functioning. The finding emerging on the role of vegetables, fruits, red meat, vitamins in general, dairy products, coffee and no saturated fats are inconsistent. Few studies have emphasized that yoga can minimize pain by helping the pain centre located in the brain to stabilize the gate-controlling mechanism that is found in the spinal cord, as well as the secretion of painkillers that are naturally released by the body.

This review article provides role of pharmacological and non-pharmacological measures in the management of Endometriosis, which will clarify the gray areas and highlight its future prospects.

Keywords: Endometriosis, women, quality of life

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INTRODUCTION

Endometriosis is a benign disease of the female genital system, characterized by the appearance of endometrial like tissue (glands and stroma) outside the uterus. Endometriosis commonly affects the women of 25-29 age group. Main symptoms are pelvic pain, dysmenorrhea, dyspareunia and infertility. The ectopic endometrial like tissue is functional i.e. it is similar to normal endometrial tissue in terms of histopathology and physiological response.

The most commonly affected organs are the ovaries, uterine ligaments, recto-and vesicovaginal septae, pelvic peritoneum, cervix, labia and vagina. Pelvic pain is the presenting symptom in majority of women, which is often intense.

Other presenting symptoms are dysmenorrhea, dyspareunia and in some cases infertility also. Endometriosis may show malignant transformation in 1% of women, where ovary is the first to be involved.¹

PSYCHO-SOCIAL IMPACTS OF ENDOMETRIOSIS^{2,3}

Although the main symptoms of endometriosis are pelvic pain, dysmenorrhea, dyspareunia and infertility; it has profound negative impact on mental health and social life. Since the disease has a chronic course, women have issues not only with fertility but also with intimate relationships, sometimes leading to breakups. Women feel depressed and show less interest to socialize. Treatment costs associated with the disease further add to negative impact. A large multicentric study conducted emphasized the importance of this negative impact on expenditure, imposing financial burden on patients and indirectly on healthcare systems and society. Qualitative studies have highlighted that clinical picture and treatment of endometriosis is different for different age groups. The clinical picture depends on age, household circumstances and socio-demographic characteristics.

Quality of life

Many studies have concluding proof that endometriosis has a negative impact on Quality of life, affecting

daily activities such as household activities, social activities etc. women have complained of reduced energy and vitality. Many women feel that endometriosis controls and restricts their lives, leaving them powerless. Again, these findings have persisted over time and the paucity of effective and long-term treatments and the absence of a cure are likely to be key contributing factors.^{2,3}

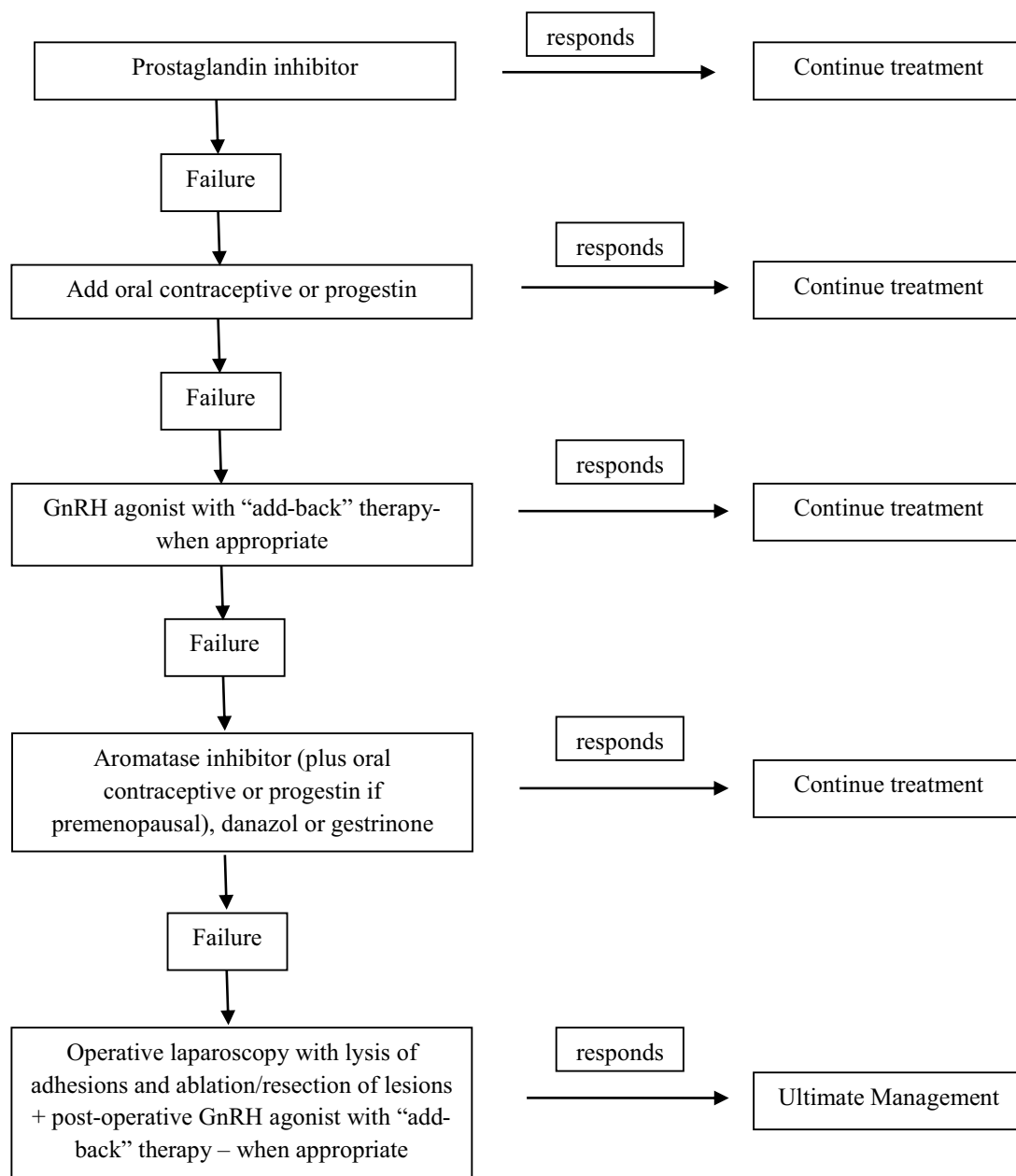
Social life

Studies report that endometriosis negatively impacts the social life of nearly 19%-48% of the women, who are affected. Social life was disturbed, like reduction in so-

cial activities because of pain and fatigue; and fear of onset of pain, when they were outside.^{2,3} Women also described feeling less able to socialism when they are out (due to being preoccupied with worry about their condition), resulting in reduced confidence.

Intimate relationships

Endometriosis not only affects social life but also their personal life. One of the disabling symptoms, dyspareunia adversely effects the sexual life and thereby leading to relationship breakdown, in some cases. According to a study, Magnitude of this effect was between 33.5%-71%, as reported by the participating women.^{2,3}



* Endometriosis is an off label indication

Table- 1: Proposed Treatment Algorithm for Pain Associated with Endometriosis

Work productivity

There is consistent evidence of a negative impact of endometriosis on women's working lives and the difficulties they experience in disclosing information to employers. Many studies state that women have lost their wages, not only due to their inability to go to work; but also due to their reduced efficiency at work. The statistics according to a study are as follows; 84%-85% of women reported a decrease in their quality of work, upto 65% reduction in attendance and an average reduction in work productivity of 64%.^{2,3}

Consulting points

The studies exploring social and psychological impact of endometriosis on women also revealed some facts which clinicians may find important. Many women experienced considerable delays between symptom onset and diagnosis. These delays occur at both the patient level and the medical level. Receiving a diagnosis often results in feelings of relief and vindication. Endometriosis is characterized by uncertainty and this uncertainty is not only a key feature of the diagnostic delay, but also of living with and making sense of endometriosis post-diagnosis. The uncertainty surrounding diagnosis, treatment and prognosis needs to be acknowledged and discussed with women in the clinical encounter. Studies suggest that the experience of medical treatment is often problematic for many women.

Better awareness of the varied clinical features and manifestations of endometriosis and selection of the most appropriate investigations by healthcare practitioners may reduce delays to diagnosis at the medical level. This can be achieved by increasing awareness and improving the knowledge regarding endometriosis among the healthcare professionals. Also the patients need to be educated about the signs and symptoms, about surgery and regarding prognosis. Also women desire for more information about surgery (e.g. anesthetic procedures, the location and size of incisions, possible complications and recovery time and pain) and general information about living with and managing endometriosis. While examining the level and location of the pain, clinicians should ask in depth questions about the nature of the pain (i.e. its quality, effect and duration).

ENDOMETRIOSIS – DIET AND EXERCISE

Diet^{4,5}

The role of nutrition in determining the establishment and progression of endometriosis has recently become a topic of interest, mostly due to the observation that some of the physiological and pathological processes

associated with the disease, such as inflammation, estrogen activity, menstrual cyclicity, organochlorine burden and prostaglandin metabolism, can be influenced by diet. The estrogen dependency of the disease is particularly relevant in this context. In other conditions in which hormones exert a specific role, such as breast and endometrial carcinogenesis, scientific research has demonstrated that diet and fat excess may strongly affect the incidence.

Specific habitual dietary patterns appear to have a moderate influence on some inflammatory markers shown to be increased in endometriosis. It is a known fact that intake of fresh vegetables and fruits has been associated with decreased risk of several conditions. But there are certain reports stating that the presence of organochlorines in vegetables and particularly fruits is associated with the risk of endometriosis. Also there is a strong association between endometriosis and red meat rich diets.

There is no proven association between fish consumption and endometriosis. But omega-3 PUFA is known to play an important role in the regulation of prostaglandin and cytokine metabolism. Decreased intake of omega-3 PUFA is associated with decreased synthesis and biological activity of cytokines such as interleukins-1,2 and 6, tumor necrosis factor and also prostaglandin synthesis. There is no consistent proof that the dietary factors like vegetables, fruits, red meat, vitamins in general, dairy products, coffee and unsaturated fats, etc., can increase the risk of endometriosis. Certain hypothesis have been suggested but couldn't be proved beyond doubt. At present, any evidence available supporting the association between diet and endometriosis is equivocal.

Exercise⁶

There are many studies suggesting the role of regular physical exercise in alleviating the signs and symptoms of diseases, which involve inflammatory processes. It is believed that the regular exercise increases the blood levels of cytokines; with anti-inflammatory and anti-oxidant properties and also decreases the estrogen levels. Ectopic endometrial tissue causes a local inflammatory peritoneal reaction at the involved sites. There is elevated levels of reactive oxygen species in the peritoneal fluid, suggesting the role of oxidative stress. These changes are responsible for the inflammatory process in endometriosis. An additional benefit of regular exercise is that there is cumulative reduction of menstrual flow, of ovarian stimulation and of the action of estrogen. In another study reporting that physical exercise

Food	Processes potentially involved
Vegetables	Supply of regenerating DNA methyl groups in critical genes
Fruits	Polychlorinated biphenyl containers interfering with hormonal pathways
Carrots, β -carotene and vitamin A	Production of ROS and cell proliferation
Vitamins C and E	Production of ROS and cell proliferation
Total fat	Increased plasma concentration of oestradiol and oestrogen mediated disease maintenance
Red meat ham, saturated fat	Increased plasma concentration of oestradiol and oestrogen mediated disease maintenance
Butter	Oestrogen-mediated disease maintenance
Oliveoil, monounsaturated fats	ROS scavengers
Fish,omega-3 polyunsaturatedfatty acids	Production of prostaglandin E ₂ and cytokines
Trans fat	Increased concentrations of inflammatory markers
Milk, Vitamin D	Effect on the immune system
Fibres	Decreased bioavailable oestrogens
Refined and whole cereal carbohydrates	Endometrial cell proliferation through insulin and insulin-like growth factor-1 receptors
Soy phyto-oestrogens	Anti-oestrogenic effect
Coffee	Changes in availabilityof various hormones
* ROS – Reactive Oxygen Spices	
Table-2: Effects of specific foods on endometriosis – associated pathological processes	

mitigates the possible adverse effects of medications, it was found that physical exercise is a supporting factor in the recovery of bone density in women treated with GnRH. Overall available data indicate an inverse relationship between the practice of physical exercise and the risk of endometriosis.

Yoga⁷

The practice of yoga is increasing now-a-days, for its beneficial effects on health, both physical and mental. Recently some studies have suggested the positive role of yoga in mitigating the signs and symptoms of certain diseases, including Endometriosis. It is being observed as a beneficial option to complement and reduce the medications. This practice employs various yoga techniques and poses, which bring relief from pain during periods and also help with fertility problems. Most common symptom of endometriosis, pain(dysmennorhea, dyspareuniaetc.); can be effectively reduced. This beneficial effect of pain reduction is due to the stabilizing effect on gate controlling mechanism of pain centres located in spinal cord and also increases the secretion of natural pain-killers in the body. Although yoga involves many techniques, breathing exercises are more helpful in minimizing the pain, as deep exhalation promotes relaxation. These breathing exercises not only alleviate pain but also promote overall phys-

ical and mental health. The reduced stress levels are associated with improved fertility.

CONCLUSION

Endometrioses, a complex disorder that may go undiagnosed for years, with no absolute cure and a high recurrence rate, continues to be a significant reproductive health concern with highly negative and far-reaching effects. The profound economic impact and significantly impaired quality of life of the affected contribute to the urgent need for continued research and improvement in diagnostic and treatment modalities. Focus on better clarifying pathogenesis and pain mechanisms as well as links to certain morbidities, for example, malignancies and autoimmune disease, is necessary. Effective cure for endometriosis is lacking, hence management is mainly targeted for symptom reduction, which involve varied interventions like analgesic usage, hormonal therapy, surgery (both minimally invasive and radical),etc. In some cases, fertility treatment has to be done, but with varying results.^{8,9,10}Endometriosis, being a chronic disease; associatedwith delay in diagnosis and adversely affects the physical and mental health, fertility and intimate relationships, psychosocial relations is worth mentioning.

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