

Melatonin- A new potential biomarker with a role in the diagnosis and treatment of endometriosis- a review of data from the literature

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Objective:

➤ Melatonin is a neuroendocrine hormone that is synthesized and released mainly at night by the mammalian pineal gland. There is evidence that melatonin receptors are also expressed at the level of the uterus. Therapeutic effects of melatonin on endometriosis have been reported by regulating local immune, inflammatory and angiogenic responses.

 ➤ The present work aims to harmonize the results of these studies in search of promising new insights into both early diagnosis and therapy in endometriosis.

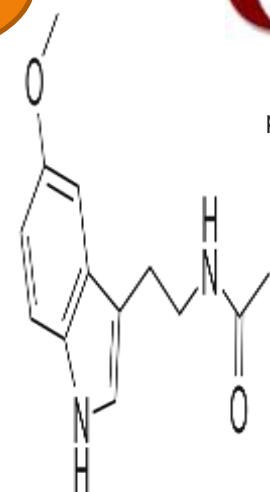


Fig. 2 Melatonin structure

Methods

Review of the articles published in the literature to identify melatonin's potential treatment and diagnosis role in endometriosis.

Results

➤ In the evaluated studies, melatonin has been proven to prevent and treat endometriosis by reducing the size and severity of endometriotic lesions.

 ➤ MT2 protein expression was significantly reduced in peritoneal lesions compared to eutopic endometrium.

 ➤ A randomized, double-blind, placebo-controlled phase II clinical trial demonstrated that melatonin could relieve pain in endometriosis.

 ➤ Current evidence suggests that melatonin supplements are safe for short-term use, with mild side effects reported.

 ➤ No study has shown that exogenous melatonin induces serious adverse effects. In addition, clinical studies have proven the safety profile of exogenous melatonin for use as a supplement and in reproductive-related conditions.

Discussion

Various lines of evidence support the potential role of melatonin in the treatment of endometriosis through its antioxidant and anti-inflammatory role, as well as its capacities to modulate endocrine functions via hormonal signaling pathways and the absence of toxic side effects. Additionally, there is evidence illustrating the application of exogenous melatonin to suppress ectopic endometriotic lesions, relieve endometriosis-associated pelvic pain, and improve sleep quality in the case of women suffering from endometriosis.

Keyword:

animal studies, endometriosis, biomarker, melatonin.

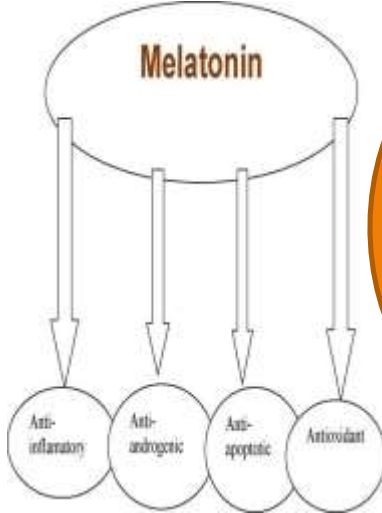


Fig. 1 Melatonin properties

Conclusions:

Further analysis of melatonin levels in the eutopic and ectopic endometrium of women with endometriosis is still warranted for therapeutic and diagnostic efficacy. Furthermore, randomized trials would be needed to better understand the pharmacokinetics and clinical application of melatonin for the treatment of endometriosis.

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