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POI – current hormonal approach in optimizing fertility-the role of melatonin

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Context:
Premature ovarian insufficiency (POI) is a delicate medical problem in young women. This state is not unchangeable and permanent due to the presence of residual egg cells that are capable of being recruited and fertilized. However, according to previous results, conception is realized in less than 5% of cases.
Objective:
Evaluation of therapeutic options, in particular melatonin supplementation, in optimimizing fertility rate in women with premature ovarian insufficiency.
Methods/patients:
Over the period of 8 years, the evaluation of secondary amenorrhea was conducted in 90 patients below the age of 40 who wished to restore fertility. Having confirmed the diagnosis and investigated the etiology of premature ovarian failure (by means of endocrinological, ultrasonographic, immunological and genetic tests), hormone replacement therapy was applied (sequential administration of estradiol and norethisterone acetate). Supplementation with 25mg of micronized oral dehydroepiandrosterone (DHEA) daily was conducted in 44 patients, whereas a combined regime (estrogen-progestogen therapy + DHEA supplementation in daily doses of 25mg + melatonin supplementation in daily doses of 3mg) was conducted in 16 patients.
Results:
In the course of our study, 15 pregnancies were realized (17% of cases / 19% in "melatonin" group) 6 to 20 months after the initiation of hormone therapy and there have been 12 completed term pregnancies so far, with normal fetal growth and development.
Conclusions:
Hormonal therapy is the key therapeutic option in treating premature ovarian insufficiency. Supplementation with melatonin, and/or DHEA, that has a stimulating effect on steroidogenesis, folliculogenesis, angiogenesis, the quality of egg cells and embryo development, opens up new possibilities in future modern POI treatment protocols with optimizing fertility as their priority. Melatonin might be a crucial factor in regulating numerous processes in human reproduction; it could create new opportunites for managing various ovarian diseases including POI.

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