

Premature Ovarian Failure and Decline of Ovarian Reserve Function

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Abstract: This paper explores the clinical related factors affecting premature ovarian failure and the decline of ovarian reserve function. By selecting 56 cases of premature ovarian failure diagnosed by gynecology in 2018, it analyzed the related factors of premature ovarian failure and the decline of ovarian reserve function to guide clinical prevention and treatment. The basic conditions, menstruation, pregnancy, delivery, contraception, health, living conditions, economic conditions, psychological, social and family conditions of 56 cases of premature ovarian failure diagnosed by gynecology were analyzed. Studies have shown that ovarian reserve function decline and ovarian premature aging are various causes. The long-term lack of ovarian endocrine hormones will give women multiple systemic disorders such as the nervous system, cardiovascular system, skin system, genitourinary system and skeletal system. Therefore, attention should be paid to ovarian reserve dysfunction and premature ovarian failure, early detection of such patients and treatment to promote fertility and general health, developing good habits and conducting effective and positive preventive measures can greatly prevent the occurrence of this disease.

1. Introduction

Female ovaries have a reserve function of the original follicles, which do not increase after birth and have no reproductive capacity. Normally, women enter menopause when the original follicles are used up. Abnormal consumption of ovarian reserve function eventually leads to premature failure of ovarian function, called premature ovarian failure, and its incidence is increasing year by year [1]. Often have irritability, flushing complexion, decreased sexual desire, night sweat and hot flashes and other symptoms. There is no case name of "premature ovarian failure" in traditional Chinese medicine. The clinical symptoms of this disease include "amenorrhea", "infertility" and "blood withering" [2]. The etiology of this disease is complex and the pathogenesis has not yet been fully elucidated. Western medicine believes that this disease is mostly related to genetic factors, immune mechanisms, infectious factors, chromosomal abnormalities, psychological factors. Chinese medicine has unique insights and advantages for the treatment of premature ovarian failure. With the increase of age and the increase of basal FSH, the number of sinus follicles is also decreasing, probably because sinus follicles are the main source of estrogens. Decreased sinus follicles decreased INH, increased FSH, and decreased ovarian reserve. Some scholars refer to <5 follicles, 5-15 follicles, and >15 follicles as resting ovaries, normal ovaries, and polycystic ovaries, depending on the number of sinus follicles [3].

In 2013, the acute onset of ovarian dysfunction in young women after the start of cancer treatment was proposed by relevant scholars [4]. In the same year, the genome marker of ovarian reserve was proposed by relevant scholars [5]. Since 2016, the rat model of human umbilical cord mesenchymal stem cells treating cyclophosphamide-induced premature ovarian failure has been studied by relevant scholars [6]. Premature ovarian failure (POF) refers to the natural amenorrhea that occurs before the age of 40 in women. Data show that the incidence of POF is 1%-4%, and the incidence of POF is increasing year by year. The etiology of premature ovarian failure is unclear, most of which are idiopathic, and may involve genetic, immune and other factors. The decline of ovarian reserve function refers to the decline of ovarian ability to produce eggs or the quality of eggs produced. The main manifestations of this phenomenon are the scarcity of menstruation, the

decline of fertility and even amenorrhea before the age of 40 [7]. Lead to premature ovarian failure, known as premature ovarian failure. Ovarian dysfunction, endocrine disease or other causes can cause premature ovarian failure. As lifestyle changes, some external factors also contribute to ovarian function. The incidence rate is increasing year by year, which seriously affects the reproductive health and quality of life of women [8]. In order to understand the factors related to the incidence of POF and DOR patients, we compared the basic situation, birth, life, economy and family situation of gynecological outpatients and health census women [9]. Thereby impairing or reducing the ovarian function of female patients, thereby causing female reproductive endocrine dysfunction. Some patients also have premature ovarian failure. A large number of studies have shown that DOR occurs with genetic, enzyme deficiency, abnormal gonadotropin levels, decreased autoimmune function, too little egg cell reserve or excessive loss. Idiopathic and related to drugs, food, environment, and mental factors [10].

2. Materials and Methods

The etiology of premature ovarian failure and decreased ovarian reserve function is still unclear. It may be associated with genetic factors, enzyme deficiency, gonadotropin and its receptor abnormalities, autoimmune injury, idiopathic, ovarian destructive factors (radiotherapy, chemotherapy, surgery, infection, etc.). Abnormal inhibin, follicular dysplasia, too little or too much oocyte reserve are related. Premature luteinization of the ovary refers to the early occurrence of LH peak and a slight increase in progesterone levels during ovulation stimulation induction, which is related to the decline of ovarian reserve function and predicts a low pregnancy rate. Health education for women, understanding the characteristics of menstrual physiological and psychological reactions, telling about changes in the endocrine system, premature ovarian failure. There may be a period of menstrual reduction - menstrual thinning - amenorrhea before the onset of the disease, so pay attention to menstrual changes. A total of 56 patients with premature ovarian failure diagnosed by gynecology were investigated. The related factors of premature ovarian failure and decreased ovarian reserve function are shown in Table 1 and Figure 1.

Table 1 Premature ovarian failure and decline of ovarian reserve function

	Number	Proportion
Abnormal menstruation	21	58%
Gynecologic surgery	18	50%
Gynecologic tumor	10	28%
Psychological factor	4	11%
Other reasons	3	8%

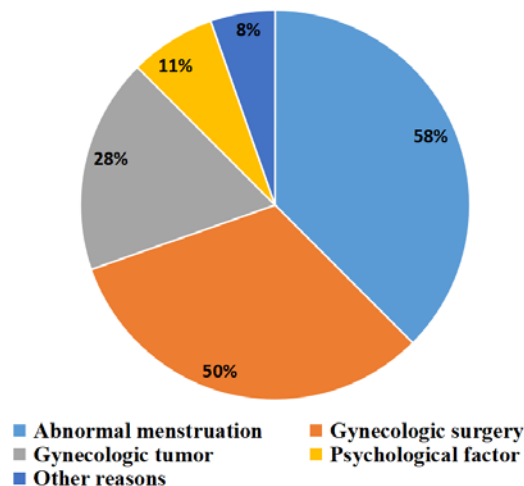


Fig.1. Premature ovarian failure and decline of ovarian reserve function

Premature ovarian failure (POF) is a common endocrine disease in gynecology. Because of the

low level of sex hormones in patients, it can cause disorders of lipid metabolism and easily lead to hyperlipidemia, atherosclerosis, coronary heart disease and so on. Therefore, the treatment of premature ovarian failure has involved the scope of prevention and health care. The mechanism of premature ovarian failure is not yet fully understood. At present, artificial cycle hormone replacement therapy is commonly used in clinical treatment. Artificial cycle therapy has the characteristics of convenient medication, remarkable curative effect and rapid response. It can effectively alleviate the peri-menopausal symptoms of patients and alleviate the quality of life of patients. So far, there is no definitive and effective way to restore the function of ovaries. Combining the level of the menstrual cycle with age and follicle stimulating hormone levels can better assess ovarian reserve capacity. Progesterone is associated with decreased ovarian reserve function, and dynamic monitoring of progesterone changes has also become one of the auxiliary indicators for assessing ovarian reserve function. Blood $P > 14.9 \text{ nmol/L}$ or urine $E2 > 6.22 \text{ nmol/L}$ is a sign of ovulation. If the concentration of estrogen and progesterone is low, it indicates that the ovarian reserve function is declining or depleted.

Mature oocyte is essential for reproduction, and endocrine function of ovary plays a key role in reproduction. The estrogenic functions of ovaries include: promoting the development and maturation of female reproductive organs and laying the foundation for reproduction. Stimulate and maintain the development of secondary sexual characteristics, maintain sexual desire. The estrogen secreted during follicular development promotes endometrial proliferation, which is the premise of the effect of progesterone secreted after ovulation on endometrium. In addition, endometrial minimally invasive surgery can improve the endometrial receptivity, so that fertilized eggs can be easily implanted. Endometrial minimally invasive surgery is a mechanical means of improving the endometrial receptivity by eliminating the irregular endometrium. Thereby, local pathological changes are removed, and the regeneration of the spiral artery and endometrial blood vessels of the endometrium, the proliferation and differentiation of epithelial cells and stromal cells are further promoted. The sensitivity of the endometrium to exogenous sex hormones is also enhanced, thereby increasing the success rate of embryo implantation.

3. Result Analysis and Discussion

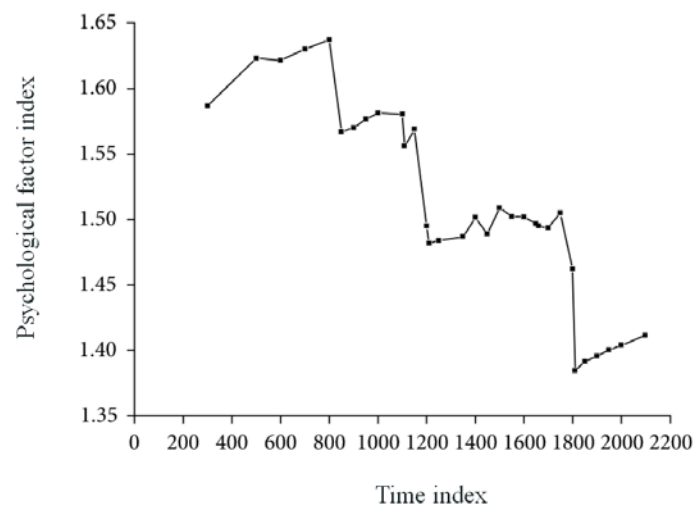


Fig.2. The relationship between psychological factors and premature ovarian failure and decreased ovarian reserve function

The normal function of ovary is affected by hypothalamus and pituitary gland. Excessive stress or abnormal mood can lead to premature ovarian failure. The persistent abnormal decline of ovarian reserve function ultimately leads to premature ovarian failure, which is a causal relationship between the two. The pathogenesis of premature ovarian failure is related to many factors, including physiological, social and psychological factors. The relationship between psychological factors and

the incidence of premature ovarian failure and decreased ovarian reserve function is shown in Figure 2. Estrogen promotes the development of female secondary sexual characteristics, maintains the female's beautiful posture, is beneficial to women's physical and mental health, and has positive promotion significance for women's life and work. Second, estrogen can also maintain the normal development of the vulva, vagina and uterus as well as the normal female pelvic floor structure. It not only enables the reproductive organs to function, prevents the prolapse of the pelvic organs and the functional damage it brings, but also promotes the comfort and harmony of sexual life.

With the increase of women's age, women's reproductive ability gradually declines. The main reason for age-related fertility decline is the decline of ovarian function, that is, the decrease of egg quality and number. One of the most important factors affecting the success rate of ART is ovarian reserve function. Ovarian reserve function declines, ovulation induction can not obtain enough eggs to select good quality embryos for transplantation, pregnancy rate will be significantly reduced. Moreover, large doses of medication, repeated ovulation induction and puncture and egg retrieval not only bring mental and physical harm to women, but also bring a heavy economic burden. In addition, estrogen also increases the risk of endometrial cancer. The traditional Chinese medicine itself has no side effects of hormones, and has a good regulatory effect. However, the traditional Chinese medicine treatment has a slow onset and a long course of treatment, and often the patient compliance is interrupted and the treatment effect is affected. The treatment of ovarian reserve function and the premature ovarian failure of Chinese patent medicine Kuntai Capsules has taken a long time, which has opened up a new situation for the treatment of patients with premature ovarian failure.

DOR and POF often cause vaginal dryness and affect couples' sexual life. It can also lead to vaginal choris membrane damage, bacterial and viral infections and vaginitis, which have a great impact on patients' physical and mental health and quality of life. So the prevention of disease is very important. This suggests that in the process of preventing and curing premature ovarian failure and the decline of ovarian reserve function, we should first treat systemic diseases in time and formulate a reasonable treatment plan. Balance the pros and cons, rational use of drugs, to prevent out-of-treatment or over-treatment. While using drugs to treat patients with premature ovarian failure and decreased ovarian reserve function, it is necessary to patiently understand the patient's life experience and psychological state, and promptly relieve their psychological stress and social unfavorable factors. The ovary produces autoantibodies Ao A during the immune response, causing ovarian immune damage, leading to pre-mature follicular atresia, egg degeneration and obstruction of cell division, leading to decreased ovarian reserve function and premature aging. Therefore, Ao A is one of the specific indicators of POF, especially early diagnosis of POF.

4. Conclusion

In this paper, we discussed the related factors of premature ovarian failure and the decline of ovarian reserve function. Ovarian dysfunction can cause menopausal symptoms such as hot flashes, sweating, anxiety, depression, irritability and so on. Because of vaginal dryness and insufficient lubrication, sexual life of couples will not only be greatly affected, we should strengthen publicity and education, strengthen awareness. Let patients avoid the factors that may lead to ovarian dysfunction and protect ovarian function. Including active treatment of primary diseases, avoid exposure to toxic chemicals, maintain good living habits and a positive attitude, do a good job in contraception, reduce the number of abortions, reasonable prevention of pelvic infection. Secondly, as a medical worker, we should give patients the correct guidance and advice to avoid iatrogenic ovarian injury. The decline in ovarian reserve function is only likely to progress to premature aging, but it is not absolute. The clinician provides reasonable advice to the patient based on the patient's condition, economic conditions and laboratory conditions. And the proportion of diseases combined with immune system also suggests that we should change bad habits, enhance physical exercise, and relieve mental stress. Active treatment of immune diseases may reduce or reduce the incidence of ovarian failure.

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