Case Reports and Reviews

Case Report

Improved Ovarian Reserve and Gonadotropin Levels in a Young Woman Following Cyclofert-Female® Supplementation: A Case Report.

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Abbreviations

AFC: Antral Follicular Count; AMH: Anti-Müllerian Hormone; ART: Assisted Reproductive Technology; CoQ10: Co-Enzyme Q10; DOR: Diminished Ovarian Reserve; FSH: Follicle Stimulating Hormone; IVF: In Vitro Fertilization; LH: Luteinizing Hormone; PCOS: Polycystic Ovary Syndrome; POSEIDON: Patient-Oriented Strategies Encompassing IndividualizeD Oocyte Number

Abstract

Background: *Diminished ovarian reserve (DOR) is a common condition associated with accelerated loss of ovarian function and impaired fertility. In recent years, various nutraceuticals have been studied for their potential to support ovarian function and female reproductive health. One such formulation is Cyclofert-Female®, which contains pycnogenol from maritime pine tree, acetyl-carnitine, diosgenin from yam root, coenzyme Q10, glycyrrhizin from licorice root, zinc, vitamins B6, B9, B12 and E, selenium and omega-3 fatty acids.*

Case Summary: *We present the case of a 34-year-old woman who sought a gynaecological consultation due to concerns about her fertility. A baseline assessment revealed low anti-Mullerian hormone (AMH) levels of 0.73 ng/mL, as well as elevated follicle-stimulating hormone (FSH) and luteinizing hormone (LH) levels, which are consistent with DOR. The patient was prescribed Cyclofert-Female® for five months. Following supplementation, a repeat hormonal assessment revealed an increase in AMH to 1.34 ng/mL, along with decreases in FSH and LH.*

Conclusion: *This case highlights the positive effects of Cyclofert-Female® on ovarian reserve and gonadotropin regulation after five months of supplementation in a woman with DOR. While these findings are encouraging, further studies and randomized controlled trials are required to confirm the efficacy of this intervention for managing DOR.*

Introduction

Over the past few decades, there has been an unprecedented decline in global fertility [1]. It is estimated that approximately 1% of women under 40 and 0.1% of women under 30 undergo accelerated loss of ovarian function due to genetic, environmental, and lifestyle factors, resulting in fertility [2]. Diminished ovarian reserve (DOR) is a condition in which women have fewer and lower-quality oocytes than others of the same age, which compromises fertility outcomes, even with assisted reproductive technology (ART) [3]. Therefore, ovarian reserve testing may be considered a screening tool to assist women in planning their reproductive lives. One of the most commonly used clinical markers to estimate ovarian reserve is the level of anti-Müllerian hormone (AMH), which reflects the pool of follicles during the gonadotropin-independent phase [4,5]. Despite its limitations, follicle-stimulating hormone (FSH) is also widely used as a marker of ovarian reserve; elevated levels are associated with a poor ovarian response and reduced chances of achieving a pregnancy [4,6].

Although extreme declines in ovarian reserve, such as premature ovarian insufficiency, cannot be reversed, early detection and timely, appropriate management can significantly impact fertility potential and long-term reproductive health. Current treatment options for DOR include stem cell transplantation, in vitro activation, and platelet-rich plasma injection [7,8]. Recent studies have explored various approaches to support ovarian function, including lifestyle modifications and nutraceutical supplementation aimed at reducing oxidative stress and improving ovarian function.

In this context, combination supplements like Cyclofert-Female® have been developed to target the various pathways involved in female reproductive health. Each Cyclofert-Female® capsule contains pycnogenol from maritime pine bark, acetyl-carnitine, diosgenin from yam root, coenzyme Q10, glycyrrhizin from licorice, zinc, vitamins B6, B9, B12, and E, selenium, and omega-3 fatty acids. These compounds may support folliculogenesis, enhance oocyte quality, improve mitochondrial activity, and modulate hormonal balance. This could potentially

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contribute to improved ovarian reserve markers and regulated gonadotropin levels [9–11]. This case report describes favorable changes in ovarian reserve markers and gonadotropin levels in a young woman with DOR after five months of Cyclofert-Female® supplementation.

Case Presentation

Patient Information

A 34-year-old woman presented to her gynecologist with symptoms of vulvovaginitis (inflammation of the vulva and vagina). During the consultation, she expressed concerns about her fertility potential due to her age and requested an evaluation of her reproductive health.

Medical/Surgical History

The patient had no significant past medical or surgical history. She reported regular menstrual cycles and no prior diagnoses of reproductive or endocrine disorders. She had not undergone any previous fertility treatments.

Physical Examination

General physical examination revealed a healthy woman with no signs of acute distress. A gynecological examination was performed to evaluate the presenting complaint of vulvovaginitis and showed findings consistent with mild vaginal inflammation. No additional abnormalities were detected.

Diagnostic Assessment

A general physical examination revealed a healthy woman with no signs of acute distress. A gynecological examination was performed to evaluate the presenting complaint of vulvovaginitis, which showed findings consistent with mild vaginal inflammation. No additional abnormalities were detected.

As part of the patient's baseline fertility assessment, a blood test was performed on day three of her menstrual cycle. The results revealed a low AMH level of 0.73 ng/mL, as well as slightly elevated FSH and LH levels. The results are presented in Table 1, alongside the reference ranges. Based on the Patient-Oriented Strategies Encompassing Individualized Oocyte Number (POSEIDON) classification system, the patient was categorized as Group 3. This group includes young women (under 35 years old) with reduced ovarian reserve (AMH under 1.2 ng/mL) [12].

Interventions

The patient was prescribed Cyclofert-Female®, a nutritional supplement from Surveal Pharma, formulated with ingredients suggested to support reproductive health and improve ovarian function and oocyte quality, to improve reproductive parameters. The regimen consisted of taking two pills daily after meals for five months.

Table 1. *Patient's hormonal profile examined on cycle day three, both at baseline and following five months of Cyclofert-Female® supplementation.*

Hormone	At baseline	Post-supplementation	Reference range [12,13]
AMH, ng/mL	0.73	1.34	≥ 1.2
FSH, mIU/mL	9.2	8.7	3.3 – 9.5
LH, mIU/mL	8.4	5.5	< 7.0

AMH: Anti-Müllerian Hormone, FSH: Follicle-stimulating hormone, LH: Luteinizing hormone.

Follow-up and Outcomes

After five months of supplementation, blood samples were collected on day three of the menstrual cycle, and hormonal parameters were reassessed. The repeat evaluation showed an increase in AMH to 1.34 ng/mL, along with decreases in FSH and LH levels. All of these values fell within the normal range (Table 1).

Discussion

In this case, the patient initially had a low AMH level, which is consistent with DOR according to the POSEIDON classification. After five months of taking Cyclofert-Female®, there was an increase in AMH levels and a decrease in FSH and LH concentrations, suggesting a favorable change in ovarian reserve and gonadotropin regulation.

The normalization of the patient's AMH level following Cyclofert-Female® supplementation is noteworthy and may be mediated by the components' synergistic effects. Oxidative stress has been associated with DOR because it promotes apoptosis, inflammation, and mitochondrial damage, This results in a reduction in the number of follicles and a decline in oocyte quality [14]. Studies have found that antioxidant supplementation improves ovarian oxidative stress and enhances ovarian function [15]. In particular, coenzyme Q10 supplementation alone or in combination was associated with significant improvements in serum AMH and FSH levels, AFC, oocyte count, and clinical pregnancy rate [16]. In young women with poor ovarian reserve, coenzyme Q10 pretreatment has been shown to improve the ovarian response to stimulation and IVF parameters [16,17]. Furthermore, studies have shown that antioxidant supplementation, including vitamins E and C, increases AMH and AFC in women with occult primary ovarian insufficiency, which is an early stage of ovarian failure characterized by DOR [18]. Similarly, a study of women undergoing infertility treatment found that high folate intake, particularly from supplements, was associated with improved ovarian reserve, as measured by AFC [19]. Although this study evaluated ovarian reserve using AFC rather than AMH, both parameters reflect follicle number. Therefore, the improvement in AFC observed in this study may be considered consistent with the increase in AMH observed in our patient.

Studies examining the association between diosgenin and ovarian reserve, including its main source (wild yam root), are scarce. In mouse models, however, diosgenin increased the number of primary follicles, suggesting improved ovarian reserve [20]. Therefore, the inclusion of diosgenin from wild yam extract in Cyclofert-Female® may contribute to the observed improvement in AMH levels. However, its exact role remains to be elucidated and warrants further clinical studies.

Although the effects of individual components on AMH levels have been discussed, a recent study evaluating a micronutrient combination containing omega-3 fatty acids, coenzyme Q10, vitamin E, folic acid, selenium, green tea catechins, and glycyrrhizin revealed significant increases in serum AMH levels [21]. Overall, these findings align with our results and further support the potential synergistic effect of Cyclofert-Female® components on improving ovarian reserve as assessed by increased AMH levels.

The present study also highlights the potential benefits of taking Cyclofert-Female® supplements on gonadotropin levels. In this patient, decreases in both FSH and LH levels were observed, with values returning to normal ranges. Previous studies have shown that coenzyme Q10 supplementation, either alone or in combination with vitamins and dehydroepiandrosterone, is

associated with lower FSH levels in women with DOR [10,16]. Similarly, 12 weeks of omega-3 fatty acid supplementation has been shown to improve the altered hormonal profile of women with polycystic ovary syndrome (PCOS) by reducing serum levels of FSH and LH [22]. Diosgenin supplementation with vitamin D and α-lactalbumin yielded similar results in women with PCOS: a significant decrease in FSH and LH levels, as well as in the LH/FSH ratio [23].

Although we are not aware of any previous studies examining the relationship between pycnogenol and glycyrrhizin supplementation and gonadotropin regulation, there is research evaluating this relationship with related outcomes. Studies have shown that the symptoms of perimenopause in women improved after three to six months of pycnogenol supplementation [24–26]. In the Cyclofert-Female® formulation, Pycnogenol may have contributed to reducing ovarian aging, improving the ovarian microenvironment, and supporting follicular development through its antioxidant and anti-inflammatory properties. Conversely, the literature highlights the potential effects of licorice dry extract on relieving menopausal symptoms and regulating sex hormones through its estrogenic, antiandrogenic [27], and antioxidant properties [28]. These mechanisms may have contributed to the normalization of gonadotropin levels observed in our patient by improving hormonal balance. Further well-designed studies on the underlying mechanisms and effects of these components on gonadotropin regulation in women with DOR are needed.

In addition to affecting oocyte quantity, several components of Cyclofert-Female® may influence oocyte quality. For example, compounds such as coenzyme Q10, acetyl-L-carnitine, zinc, selenium, folic acid, omega-3 fatty acids, and vitamins B6 and B12 play important roles in mitochondrial function, antioxidant defense, and cellular metabolism. These processes are essential for proper oocyte maturation and may enhance oocyte quality [9,11]. However, it is important to note that oocyte quality was not directly evaluated in this patient; therefore, no definitive conclusions can be drawn. Future studies evaluating ovarian reserve markers and direct measures of oocyte quality are necessary to better understand these effects.

Despite the positive results, there is still insufficient research to draw a clear conclusion about the use of this new supplement combination in women with DOR. Therefore, the results of this case report should be interpreted with caution and considered preliminary until there is much more evidence supporting the benefits of Cyclofert-Female®. More high-quality, randomized, controlled clinical trials are needed to validate our results.

Conclusion

In conclusion, the data from this case report suggest that micronutrient supplementation including pycnogenol, acetyl-carnitine, diosgenin, coenzyme Q10, glycyrrhizin, zinc, vitamins B6, B9, B12 and E, selenium and omega-3 fatty acids, when administered for at least five months, may positively impact ovarian reserve and hormonal parameters. This may include increasing AMH levels and reducing FSH and LH levels. The presented data should encourage future studies and randomized controlled clinical trials to validate the current evidence, reduce bias, and identify the optimal Cyclofert-Female® regimen for improving DOR.

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