



EFFECTS OF MEDICAL NUTRITIONAL TREATMENT ON POLYCYSTIC OVARIAN SYNDROME

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ABSTRACT

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder seen in women, and although it affects 10% of reproductive age women, it is often overlooked in the clinic. The aim of this study was to investigate the effects of medical nutrition therapy on PCOS patients. This study was conducted with the aim of investigating and investigating the effects of medical nutrition therapy on PCOS patients. The study was conducted on polycystic over and medical nutrition therapy; 30 articles published between 2001 and 2019 were scanned. Higher body mass index (BMI), obesity and insulin resistance may play an important role in the pathogenesis of depression in women with PCOS and weight m In addition, chromium, iron, selenium and vitamin D supplements are reported to affect the disease positively. 50% to 70% of women with PCOS are obese, and 5% to 10% weight loss in patients is reported to be associated with significant improvements in metabolic and hormonal markers. In the studies, it was reported that exercise and diet provided additional benefit and PCOS patients were reported to have positive effects on the course of the disease by positively affecting the state of inflammation by feeding with rich resources and omega-3 rich foods management is effective in relieving symptoms. It has been reported that weight loss and lifestyle changes in PCOS support treatment and decrease the complications and increase the quality of life of individuals. In addition to this information, it is emphasized in studies that can be considered in polycystic ovarian therapy by adding insulin sensitivity in vitamin D. Nutritional therapy should be planned individually and supported by further research in PCOS patients such as many diseases.

1. Introduction

In 1935, the disease was defined as the combination of hirsutism, amenorrhea, chronic anovulation, infertility obesity and enlarged cystic ovaries, in 1990, the disease, called PCOS by the world health organization, is the most common endocrine disorder in women (%6-20) (1-2). It is characterized by signs and symptoms of androgen hormone excess and ovarian dysfunction, and it is thought to affect approximately 10% of reproductive age women (3). Clinical manifestations are associated with endocrine disorders such as oligoovulation, infertility, acne and hirsutism and metabolic disorders such as diabetes, abdominal obesity, insulin resistance, dyslipidemia, and hypertension. Since her

symptoms progress with a similar course with the metabolic syndrome, diagnosis is often overlooked (4). It was observed that women with PCOS had higher weight than healthy women. It is thought that diseases such as insulin resistance, menstrual disorders, hirsutism cause weight gain in PCOS cases (5).

A symptomatic treatment approach is recommended in PCOS. With the increasing diagnostic criteria and symptoms over time, the number of women diagnosed and the number of symptoms seen in the course of the disease have increased (6). When nutritional therapy is applied in PCOS, which is characterized by insulin resistance, it may not be necessary to use diabetic medication

when obesity and insulin resistance is prevented (7).

2. Materials and Methods

This study was conducted with the aim of investigating and investigating the effects of medical nutrition therapy on PCOS patients. This study, which covers the medical nutrition practices of patients with polycystic ovary syndrome, was carried out by examining 30 articles between the years 2001 and 2019 in order to address the current approaches.

3. Results and Discussion

Considering the endocrine, metabolic and psychosocial symptoms of PCOS, the importance of the normalized BMI values in the course of the disease is seen. Studies on women with PCOS have shown the importance of diet and caloric value. Contrary to popular belief, low-carbohydrate (43% - 50%) diets are not shown to cause significant changes in weight loss, metabolic and endocrine conditions. However, one of the important points to note here is that it is not only calorie-oriented, but also important in choosing the right source of carbohydrates. It has been reported that the decrease in fasting blood glucose levels and decreased insulin sensitivity have been reported with the decrease in consumption of carbohydrate sources in patients who have started to develop insulin resistance characterized by PCOS (8). Low glycemic index and fiber-rich complex carbohydrate sources have been reported to reduce weight and decrease in insulin resistance (9).

Another nutrient that needs to be taken into account in diet is fatty acids. By increasing the consumption of polyunsaturated fatty acids, the ovulation indicator showed improvement in hormones while there was no change in insulin sensitivity and level. However, it is thought that there may be an improvement in insulin sensitivity with the consumption of polyunsaturated fatty acids with vitamin E. Although this view is unproven in PCOS patients, increasing the consumption of

nuts which can be considered as a source of vitamin E and quality oil may have a positive effect. Again, the potential improvement of this consumption in blood lipids, considering the increase in soluble fiber consumption of nuts as a preference of oil is thought to have a positive effect (10). It is stated that saturated fat consumption may be beneficial to minimize consumption in women with PCOS who are already at risk of metabolic syndrome (7).

Ketogenic and / or very high-protein diets have long been preferred for weight loss. However, there is no study showing that PCOS patients have an effect on the treatment of androgen hormones and correcting blood glucose. On the contrary, it has been reported that high protein diets have negative effects on kidney function and bone mineral density, while there is no improvement in insulin levels and sensitivity. Especially when it is increased with the consumption of animal-derived protein, it is thought to cause hyperlipidemia in the long term with its effect on blood fats. In addition, it has been shown that protein sources in the daily consumption can be diversified and by increasing the consumption of plant derived protein, it increases the toughness period by drawing a more positive profile with the fiber in its content (9-11).

Another component that is as important as the composition of the nutrients is the elements necessary for the continuity of the body functions. Considering the irregularity in ovulation and menstrual cycles, iron is the first element that comes to mind. In studies conducted, it is shown that iron element is increased in women with PCOS. This is due to the increase of androgenic hormones and the loss of menstrual loss (12). But; there can be no indication of excess ironness for PCOS; different systematic problems such as inflammation or other mechanisms may increase iron (13). Another remarkable point about iron in women with PCOS is that elevated iron levels are associated with impaired glucose tolerance, insulin sensitivity and type 2 diabetes. Relationship

between Iron and Type 2 Diabetes; It is suggested that iron excess may lead to diabetes as a cause of insulin resistance or that iron excess which may occur in insulin resistance patients can lead to Type 2 diabetes (14). Considering both mechanisms, obesity is an important problem in women with PCOS. In a study comparing PCOS and healthy women, it was shown that the iron levels of women with PCOS were higher than those of healthy women and had higher serum ferritin levels (15).

Since chronic inflammation is associated with diabetes and insulin resistance, it is thought that diseases such as atherosclerosis and cardiovascular diseases, which have an increased incidence in PCOS patients, may develop due to inflammation starting with insulin resistance (16). In one study, it was shown that T-lymphocytes in PCOS patients decreased by about 60%, leukocytes and macrophages increased significantly with the growth of ovaries (17). A study comparing 136 women with PCOS and healthy women; women with PCOS were shown to have higher levels of CRP, TNF- α and IL-6, and were higher in women with a BMI of more than 30. Pro-inflammation cytokine indicate that this increase in cytokines may cause significant changes in the prognosis of the disease and may aggravate the clinical picture (18).

Another issue that is important in nutrition in women with PCOS, especially obese or overweight PCOS, is that when the anti-inflammatory dietary habits are adopted, the disease course will be improved. In particular, omega-3 fatty acids are considered to have the most positive effect on immune regulation, insulin sensitivity and ovulation in antiinflammatory nutritional components (19). It is shown that supplementation of omega-3 fatty acids in women with PCOS has a healing effect on oxidative stress-induced folliculogenesis disorders and hyperinsulinemia (20). At the same time, it is thought that omega-3 consumption will cause significant improvements in PCOS disease course

when it is considered to have a healing effect in cardiometabolic disorders. In a systematic review of 204 studies conducted between 2015-2018; it has been shown that omega-3 fatty acid consumption decreases total cholesterol, LDL and triglyceride ratios in women with PCOS, and has an effect on LDL receptor activity and catabolism (21).

Inflammation pathways can also have different effects in the body in many different ways. For example serum 25 (OH) D concentrations of insulin resistance, body mass index, body fat percentage, which is inversely proportional to the hyperinsulinemia in Austria, Germany and made in Turkey are expressed in three different trials to date. The effects of vitamin D deficiency on metabolism of PCOS patients suggest that there may be a relationship between vitamin D deficiency and PCOS (22-24). Also, the serum vitamin D (25) levels were found to be low in PCOS patients. However, whether or not metabolic syndrome markers in PCOS patients are caused by vitamin D cannot be explained by a precise mechanism (25). In a study in which PCOS patients lacking vitamin D deficiency in addition to insulin sensitivity and resistance were found to have higher HDL than those who had deficiency, vitamin D supplementation is thought to play a protective role in PCOS patients in terms of cardiovascular complications (26).

Apart from dietary factors, physical activity is one of the important points in PCOS patients. Considering that PCOS pathogenesis is significantly related to obesity; the importance of physical activity is seen with many different mechanisms by decreasing the metabolic syndrome markers, increasing the lipid profile especially with the increase in HDL and increasing the insulin sensitivity. It is stated that it can show a healing profile in patients by decreasing the body fat rate and increasing the muscle mass in the long term by inhibiting the basal metabolism and preventing the other complications that may occur in the prognosis of PCOS (27).

Recent studies have determined the presence of a male PCOS response syndrome in which the genes responsible for PCOS sensitivity in women can be inherited by male relatives of women with PCOS. The same hormonal, clinical and metabolic changes of women with PCOS revealed that there was a relationship between male equivalent and male equivalent. Considering the clinical manifestations of male PCOS equivalent, it is supported by the findings of a case-control study that reports the prevalence of early-onset androgenetic alopecia (AGA), hyperinsulinemia and insulin resistance-related disorders. Studies have shown that dietary restriction for PCOS may be beneficial for male patients affected by PCOS equivalent syndrome. Some observational studies and some randomized studies have reported that moderate decreases in body weight reduce the risk of developing many diseases, including diabetes and cardiovascular diseases, and contribute to an increase in insulin sensitivity in women with PCOS. In a study, weight reduction is a feasible method for men affected by PCOS equivalent syndrome to reduce circulating androgen levels, insulin resistance and related complications such as CVD and DM II (28).

Administration of diets containing nutraceuticals, such as inositols, has positive effects on PCOS women with typical insulin resistance, particularly with high BMI values. In addition, vitamin D is thought to play an important role in the pathogenesis of insulin resistance in PCOS (29, 30).

4. Conclusion

PCOS metabolic syndrome is an endocrine disorder, which is a common and frequent disease disorder, especially in women who are closely related to obesity. For this reason, the main target should be appropriate treatment of symptoms and should be to regulate ovulation by regulating insulin resistance, menstrual disorders and hyperandrogenism by providing weight loss within the treatment of obesity which is common in

women with PCOS. In order to reach more detailed information on this subject, comprehensive studies are needed to observe the positive developments in the course of the disease with changes and changes in nutrition, life styles and behavioral changes of patients with PCOS.

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