EFFECT OF SEED CYCLING ON POLYCYSTIC SYNDROME

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Abstract

The objective of this study is to assess the effects of Seed cycling on menstrual cycle, hirsutism and blood sugar in PCOS. 32 women with PCOS who fulfilled the selection criteria were included in this open label interventional study. Menstrual history, measurement of body weight, BMI, random blood sugar and Ferriman Galleway scoring for hirsutism were done at baseline. The subjects were given 10 grams of seeds to be taken every day four times for 3 months.30 subjects completed the study. The above parameters were measured before and after three months. The results were analysed using paired T test. A significant reduction in BMI and Improvement in menstrual cycle was observed after seed therapy. The mean reduction in the BMI, 25.85±3.4 in pre and post its 22.75±4.3 respectively by end of 3 months respectively.

Keywords: Flaxseed, sunflower, pumpkin, sesame, PCOS

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INTRODUCTION

PCOS (polycystic ovary syndrome) is the most usual hormonal disorder occurring among the women of reproductive age, affecting 5-10% of the population. According to AES (Androgen Excess Society) diagnostic criteria, PCOS is differentiated via at least two of the following key factors: The presence of hyperandrogenism clinical (hirsutism) and/or biochemical and either oligo or anovulation and finally presence of polycystic ovarian morphology[1] Patients with PCOS mainly show metabolic and other clinical features including hyperandrogenaemia, hyperinsulinemia, obesity, dyslipidaemia, insulin resistance, ovulatory dysfunction, menstrual irregularity, and polycystic ovaries. Moreover, PCOS may also reason an expanded chance of metabolic disorders, such as type 2 diabetes mellitus (T2DM), cardiovascular disease, metabolic syndrome, endometrial cancer, infertility, obstetrical complications, psychiatric conditions, and different complications[2].

Recently, genetic, lifestyle, and environmental triggers had been taken into consideration as the principal drivers of PCOS, however the actual pathogenesis stays largely unclear. In view of the constraints of current therapeutics for the metabolic signs and symptoms of PCOS, novel and extra sensible techniques for the control of PCOS are needed. In many women with PCOS, insulin resistance, obesity, disorders of lipid metabolism and infertility also can be located. Hyperinsulinemia may also increase abnormal ovarian androgen secretion and develop abnormal follicles, leading to dysfunctional ovarian and menstrual cycle.[3] Based on this assumption the present study was conducted to find out the effect of Seed cycling in PCOS.

SUBJECTS AND METHODS

This study was a prospective interventional study. It was conducted after approval from Institutional Human Ethics Committee Letter No: IHEC/08/2021/265

Thirty-two women with PCOS, between 18 to 32 years were selected based on Rotterdam criteria i,e presence of two out of three features: oligo- or anovulation, clinicial and/or biochemical signs of hyperandrogenism , or polycystic ovaries (ovarian volume>10cc,12 or more peripherally located follicles 2-9 mm in diameter or hypoechoic enlarged ovaries with hyperechoic central Stroman in USG)

Exclusion criteria: Pregnant and lactating women, those with signs and symptoms of PCOS but showing normal ovaries on ultrasound, those on oral contraceptive pills, metformin, antiandrogens like flutamide, spironolactone, clomiphene citrate, women on antiplatelet and fibrinolytic drugs, those with ovarian hyperstimulation syndrome, simple/ complex ovarian cyst on ultrasound and those with history of allergy to seeds.

The subjects were recruited from the department of obstetrics/Gynecology and radiology department of SDM hospital. The participants were explained about the details of the study and informed consent was obtained. A total of 32 subjects were recruited. Two subjects had dropped out, one due to inability to follow the pattern. Detailed menstrual history was taken and height, body weight, BMI, random blood sugar was measured and modified Ferriman Galleway scoring for hirsutism were done before initiation of the study. Menstrual cycle details included age at menarche, frequency, duration and severity of menstrual flow and history of dysmenorrhea.

In addition, information on marital status, parity and history of difficulty in conception was collected. They were then provided with 4 varieties seeds packets and instructed to take orally 10 gram each with spoon provided (Ealy Morning-Flaxseed ,Midmorning- Pumpkin seed, evening- Sunflower seed and bedtime- Sesame seed) every day for 3 months. Compliance to the treatment was confirmed by regular phone calls and marking on daily calendar for every successful intake which the patient had to bring on the next monthly visit. Patients were reviewed every month for three months with questionnaire and all the above parameters were measured at last visit.

An improvement in menstrual cycle and reduction in body weight were considered positive outcome.

Statistical Methods

Detailed descriptive analysis of socio-demographic and clinical parameters was done. The quantitative variables were presented as mean ± standard deviation and the categorical variables were presented as frequency and percentage. Duration of menstrual cycle were taken as outcome variables. The mean difference or percentage differences in the outcome parameters, before and after treatment were calculated. Paired t-test was used to assess the statistical significance of these differences and 95% CI of the differences were also calculated. SPSS Version were used for statistical analysis.

RESULTS

A total of 30 women with PCOS were included in the final analysis as in (Fig1). There were 20-24years (5.81%),25-29 (77.91%) and 30-32 (16.28%) respectively. The mean body weight Was 64±8.9 before intervention and 60±4.6 kg/m² after intervention and the BMI, 25.85±3.4 in pre and post its 22.75±4.3 respectively by end of 3 months (Table1)

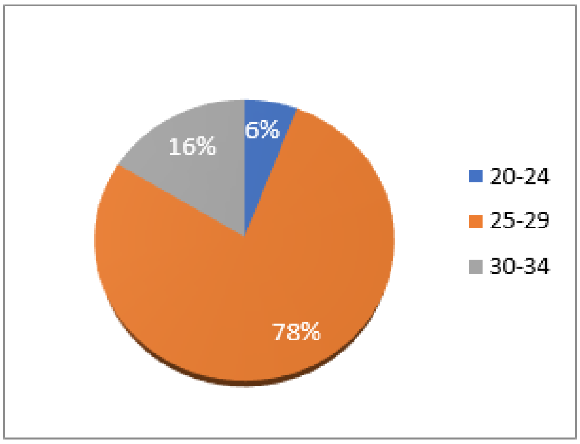

Figure 1 Age group frequency

Table 1 Descriptive analysis of anthropometric parameters of participants N=30

Parameter	Mean ±STD Pre	Mean ±STD Post	p- value
Weight	64±8.9	60±4.6	<0.001*
Height	154± 4.34	154± 4.34	
BMI	25.85±3.4	22.75±4.3	<0.001*

Effect on Menstrual Cycle

As shown in (Fig 2) before therapy only 6 (8.5%) women had normal menstrual cycle. Following seed cycling therapy 18 (78%) had regularization of menstrual cycle,9 (19%) improvement in the frequency

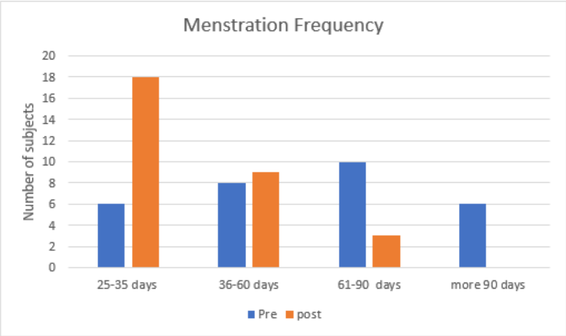

Figure 2 Effect on frequency of Menstrual Cycle

Effect on Hirsutism and Random Blood sugar level

19(63.3%) subjects had hirsutism and there was no improvement in hirsutism after treatment. There was no statistically significant difference in the random blood sugar level before and after treatment(p-Value – 0.534)

DISCUSSION

This study is to evaluate the effect of seed cycling on the polycystic ovarian syndrome patients and it showed that seed cycling has significantly reduced the weight and improved the frequency of menstrual cycles. We did not find any change in hirsutism, blood sugar level.

An average dose of 10grams of flaxseed powder was chosen on earlier studies conducted on the effect of flax seed on sex hormone levels.[4,5] Flax seed and their products have been reported to have anti-inflammatory effects.[6] Flax seeds are rich in ALA which is found to reduce interleukin-1, tumour necrosis factor and hence useful in reducing inflammation.[7,8] Caughey reported that flaxseed oil given at 14 g/day to human subjects over 4 weeks decreased the levels of tumour necrosis factor-a (TNF-a), interleukin-6 (IL-6), and cytokines.

In addition to containing lignans, pumpkin seeds are rich in zinc, which impart 15% of the Recommended Dietary Allowance (RDA) per ounce.[9] Some case reviews associate zinc with decreases in menstrual cramps. Studies states, cramps are as a result of extra prostaglandins, and zinc is thought to lower the metabolism of prostaglandins.[10].

Sunflower seeds are high in vitamin E [10]. The findings of one study suggest that vitamin E supplementation might increase progesterone, the hormone which helps maintain early pregnancy, in women who were unable to conceive. [11] A review of the role of vitamin E in female reproductive health suggested vitamin E is an antioxidant critical to promoting fertility [12]. Sunflower seeds contain essential fatty acids that is required by our body. They also contain antioxidants and certain nutrients that help in PCOS. In 1972, a study was published on vitamin E and its similarity to estrogen and progesterone (the hormones that impact the menstrual cycle) in rats[13].

Sesame seeds-Black sesame seeds reduce testosterone levels, increase insulin absorption and regulate menstruation. High lignans, phytosterol, vitamin B1, B6, calcium and magnesium help in hormonal balance. Due to high zinc content of sesame seeds, they act as hormone regulators and enhancers, help ovulation in women and thus relieve symptoms associated with menstruation. According to some research studies, Sesame Seed consumption didn't increase estrogen, but it decreased a type of androgen and increased sex hormone binding globulin (SHBG) [14]. Theoretically, this may reduce health risks for some women during menopause including cardiovascular disease and cancer risk.[15] One small study of postmenopausal women who consumed sesame seed powder found that eating the seeds increased levels of one form of vitamin E circulating throughout the body[14].

Variations across the menstrual cycle are normal, yet some changes may indicate an underlying issue that may need medical care. The aim of this study is to understand the effect and role of seed cycling in the management of PCOS (polycystic ovarian syndrome). Yet, attention to seed cycling has recently expanded as an alternative treatment or diseases control.

CONCLUSION

From our study we can conclude that Seed cycling has resulted in significant, improvement in frequency of menstrual cycles and has no effect on body weight, blood sugar and hirsutism. The positive effect of seed cycling could be due to reduction in testosterone, oestrogen, LH and insulin levels contributing to follicular maturation and the anti-inflammatory actions to the reduction in ovarian volume. Considering the improvement in ovarian function and menstrual cycle, Flax seeds appear to be an alternative source of future drug development for PCOS.

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REFRENCES:

Azziz R, Carmina E, Dewailly D, Diamanti-Kandarakis E, Escobar-Morreale HF, Futterweit W, Janssen OE, Legro RS, Norman RJ, Taylor AE, Witchel SF. Androgen Excess Society: Position statement: Criteria for defining polycystic ovary syndrome as a predominantly hyperandrogenic syndrome: an Androgen Excess Society guideline. J. Clin. Endocrinol. Metab. 2006; 91:4237–45. [PubMed] [Google Scholar]

Al-Habori M, Raman A. Antidiabetic and hypocholestrolaemic effects of fenugreek. Phytother. Res. 1998; 12:233–242. [Google Scholar]

Eisenhardt S, Schwarzmann N, Henschel V, Germeyer A, Von Wolf M, Hamann A, Strowitzki T. Early effects of Metformin in women with polycystic ovary syndrome: A prospective randomized, double-blind, placebo-controlled trial. J. Clin. Endocrinol. Metab. 2006; 91:946–952. [PubMed] [Google Scholar]

Sturgeon SR, Heersink JL, Volpe SL, Bertone-Johnson ER, Puleo E, Stanczyk FZ, Sabelawski S, Wahala K, Kurzer MS, and Bigelow C. Effect of dietary flaxseed on serum levels of estrogens and androgens in postmenopausal women. Nutr Cancer, 60(5), 2008, 612-618.

Haggans CJ, Hutchins AM, Olson BA, Thomas W, Martini MC, Effect of flaxseed consumption of urinary estrogen metabolites in postmenopausal women. Nutr Cancer, 33, 1999, 188–195.

Caughey G E, Mantzioris E, Gibson R A, Cleland L G & James M J. The effect on human tumor necrosis factor A and interleukin 1b production of diets enriched in n-3 fatty acids from vegetable oil or fish oil. American Journal of Clinical Nutrition, 63, 1994, 116-122.

Neil D. Westcott and Alister D. Muir, Flax seed lignan in disease prevention and health promotion, Phytochemistry Reviews, 2, 2003, 401–417.

Chandrasekar B and Fernandes G. Decreased proinflammatory cytokines and increased antioxidant enzyme gene expression by omega-3 lipids in murine lupus nephritis. Biochem. Biophys. Res. Commun. 200, 1994, 893–898.

Kelly RW, Abel MH. Copper and zinc inhibit the metabolism of prostaglandin by the human uterus. Biol Reprod 1983; 28:883–9.

National Institutes of Health. Office of Dietary Supplements - Vitamin E [Internet]. NIH Office of Dietary Supplements. U.S. Department of Health and Human Services; [cited 2020Jan19]. Available from: https://ods.od.nih.gov/factsheets/VitaminEHealthProfessional/

Westphal LM, Polan ML, Trant AS, Mooney SB. A nutritional supplement for improving fertility in women: a pilot study. J Reprod Med 2004; 49:289–93

Mutalip SM, Ab-Rahim S, Rajikin M. Vitamin E as an Antioxidant in Female Reproductive Health. Antioxidants. 2018;7(2):22.

Sharaf, A., Gomaa, N. Hormonal properties of vitamin E and its synergism with gonadal hormones. Plant Food Hum Nutr 22, 91–98 (1972) doi:10.1007/BF01099740

Wu W-H, Kang Y-P, Wang N-H, Jou H-J, Wang T-A. Sesame Ingestion Affects Sex Hormones, Antioxidant Status, and Blood Lipids in Postmenopausal Women. The Journal of Nutrition. 2006Jan;136(5):1270–5.

Yasui T, Matsui S, Tani A, Kunimi K, Yamamoto S, Irahara M. Androgen in postmenopausal women. The Journal of Medical Investigation. 2012;59(1,2):12–27.