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Research Paper

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Management of GERD, Obesity and PCOS Leading to Successful Conception Using the 'Integrated Approach'

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Abstract- The purpose of this case study was to determine the effect of an Integrated Approach that included patient-specific nutritional therapy, Ayurveda and lifestyle modifications, on body weight and symptoms associated with polycystic ovary syndrome (PCOS). PCOS is a clinical condition common among women, characterized by menstrual irregularities, high androgen levels and cysts in one or both ovaries. It is also associated with metabolic disruptions such as insulin resistance, hypertension and dyslipidemia. Additionally, corpulence and obesity are concomitants that lead to exacerbation of symptoms in 50% of PCOS cases. The subject of this case study was a 32-year-old pre-obese female with a clinical history of PCOS, associated infertility, hypothyroidism, gastroesophageal reflux disease (GERD) and mild hair fall. She complained of low energy levels and high levels of stress and anxiety. During the 12-week treatment, the patient achieved weight loss, improved energy levels, relief from GERD, reduced anxiety and successful conception.

Keywords*: Integrated approach, PCOS, GERD, conception*

I. INTRODUCTION

PCOS is an endocrine disorder occurring in approximately 18% of women of reproductive-age [1] as per the Rotterdam criteria. According to this criterion, diagnosis of PCOS depends on identifying at least two of the following three features: oligo or anovulation, hyperandrogenism and polycystic ovaries on ultrasound [2].

PCOS is commonly associated with obesity, menstrual irregularity, infertility, insulin resistance and clinical hyperandrogenism. Women with hypothyroidism also exhibit features of increased ovarian volume with changes in cysts [3].

Studies have confirmed a link between obesity and acid reflux symptoms, showing that high body mass index (BMI) is strongly associated with reflux symptoms, both in overweight and obese individuals, as compared to those with normal BMI [4].

Treatment for PCOS typically includes insulin-regulating drugs, anti-androgen therapy, oral contraceptives and the implementation of lifestyle changes that also leads to weight loss. Many studies have proved that weight loss leads to successful treatment of hormonal abnormalities characteristic of the PCOS population [5].

Therefore, in the present manuscript an 'Integrated Approach' was employed for the patient's treatment, suffering from PCOS and her inability to conceive. This approach included intake of low glycemic index (GI) foods, complex carbohydrates and moderate protein diet, along with ayurvedic herbs and exercise. Functional foods and supplements rich in antioxidants, fibre and nutrients were also given to correct the patient's metabolism and balance her hormones.

Rest of the paper is organized as follows: Section I contains the introduction giving brief about PCOS, its diagnosis, symptoms and treatment, along with an introduction for acid reflux. Section II consists of the case report part of the patient, giving information about her medical history, her diet recall and the treatment given to her. Section III describes the results and discussion of the data obtained after following the Integrated Approach consisting of ayurveda and nutritional therapy. Section IV concludes the case report.

II. CASE REPORT

In September 2016, a 32-year-old female presented at the Health Total centre with PCOS, pre-obesity and an inability to conceive. She was a chartered accountant by profession. According to her, she was very healthy prior to her marriage

and the medical issues started only post marriage. This could mean that increased stress levels along with an unhealthy lifestyle could have precipitated her condition.

She had been married for 3 years and had been actively trying to conceive, unsuccessfully for a year and a half (since April 2015), for which she had also been consulting a gynaecologist. The patient had a known history of underactive thyroid associated with PCOS. She was detected with PCOS in June 2016 (for which she was taking metformin and folic acid) and was also suffering from hypothyroidism since 2013 (for which she was taking levothyroxine).

She apparently had regular menses, with moderate flow that lasted 3 to 4 days. However, her ultrasound sonography (USG) test performed in May 2016 revealed polycystic ovaries with multiple small follicles.

She had also been suffering from GERD since 2015 and was taking lansoprazole for the same. Endoscopic assessment of the oesophagus for the presence or absence of GERD conducted in October 2015 revealed the presence of GERD. She had a history of surgical treatment for slip disc in 2013.

The patient had high levels of stress and anxiety, which lead to decreased appetite, disturbed sleep patterns, lethargy and depression. She was distraught and told her treating physician that she 'wanted to find herself' and that 'losing weight was her way' of doing that. She had a propensity to catch cold easily and she also complained of mild hair fall. She had a strong family history of hypertension in both parents.

The patient's pathology test results showed a slightly decreased 25-hydroxy vit. D3 level (25.3 ng/ml, as compared to the normal range of 30-100 ng/ml) and borderline serum calcium levels (8.5 mg/dl, as compared to the normal range of 8.5-10.4 mg/dl). Vitamin D is known to help reduce pregnancy complications; improves ovulatory dysfunction and hyperandrogenism [6]. Her BP was 100/70 mmHg. She weighed 69 kg and was 5 feet 2 inches tall. Her BMI was 27.8 kg/m^2, which falls in the pre-obese range.

DIET RECALL

The patient's diet recall consisted of lukewarm water first thing in the morning, followed by two cups of tea and *poha*/*upma*/*dalia* for breakfast. For lunch and dinner, she would have two *chapatis* with vegetables and *dal;* and green tea in the evening. She would rarely eat sweets but would eat out and have fried food once a week. She would also consume red wine (120 ml) once in 15 days. It is important to note that her eating habits didn't seem unhealthy because she ate home cooked food comprising of grains, vegetables, pulses and occasional red wine.

TREATMENT AND FOLLOW-UP

The patient's first visit at the Health Total centre was in September 2016 and within 3 months of joining the programme she felt much better and was able to conceive successfully. Nutritional management consisted of a customised diet plan that included a low-glycemic, high-fibre, complex carbohydrate and moderate protein diet. Regular brisk walking for 30-45 minutes 6 days a week was initiated to help facilitate weight loss and to support digestion. Along with nutritional therapy she was advised to take ayurvedic herbs, vitamin supplements (multi-vitamins, magnesium, B vitamins and vitamin D), calcium and folate supplements; as well as natural probiotics.

III. DISCUSSION

After reviewing the patient's medical history, dietary recall and other details, the patient was advised to make lifestyle changes, increase her physical activity and was given ayurvedic herbs to manage her GERD symptoms and to de-stress and an individual specific diet was given to help reduce weight. The main objective of the Health Total programme was to help the patient lose weight, manage her PCOS symptoms and subsequently help her conceive. Switching to a healthy diet can be significantly beneficial in treating PCOS and improves the chances of conception by keeping the body nourished and in a state of balance. Additional objectives of the programme were to treat her GERD, boost energy levels and to lower her stress and anxiety issues.

With the above-mentioned objectives, ayurvedic herbs were used. *Emblica officinalis* was used to manage acidity and as a carminative [7] and natural iodine in the form of seaweed to help in thyroid imbalance [8]. *Bauhinia variegata* was used for managing PCOS [9] and hypothyroidism. *Withania somnifera* was given for stress and anxiety management [10]. *Garcinia cambogia* was used for managing hunger pangs. The patient was also given vitamins and dietary supplements that included B-vitamins, vitamin D3, calcium and folate supplements, probiotics and antioxidants, both in natural and supplemental forms to help boost her energy levels.

From the second week of treatment, the patient was able to get sound sleep and she felt improved vitality. In the fourth week, her energy levels increased by 70% and her acid reflux improved. Within 2-3 weeks of being on the programme, she experienced normal bowel movements. Within 3 months, she lost 7.3 kg weight (Figure 1) and her BMI decreased to 24.9 kg/m^2 (still in overweight category) from 27.8 kg/m^2 (pre-obese category).The patient reported significant relief in her gastric issues and her digestion improved considerably aided by her weight loss and the use of herbs. It is important to note that in spite of not reaching ideal BMI of 23 kg/m^2 or less, she was feeling very fit and healthy. That is the reason she was able to conceive by the

end of the programme. Her pregnancy test came positive in December 2016 and she gave birth to a healthy baby in August 2017.

This case illustrates that Integrated Approach can work effectively in the management of PCOS, anxiety & stress, low energy, overweight and GERD symptoms and can help lead to a successful pregnancy.

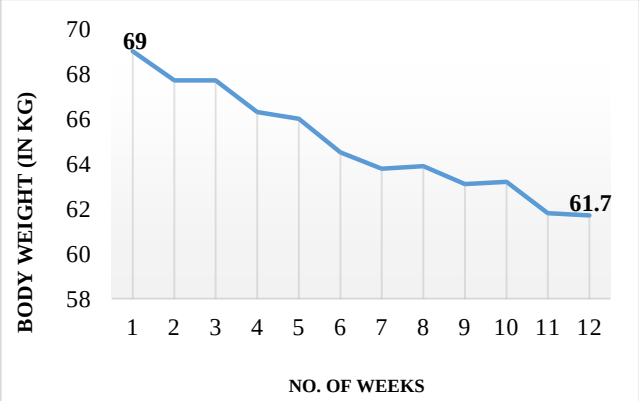

Figure. 1: Effect of the 'Integrated Approach' in the management of body weight

Following a low GI diet can be useful to reduce the symptoms of PCOS. It is important to note that a minimal weight loss (10.5%) can also have a positive impact on PCOS symptoms and fertility. Besides, a patient specific diet leading to weight loss, correction of insulin resistance and PCOS helps regularize the menstrual cycle [11]. Studies have also shown that in addition to regularizing the menstrual cycle, weight loss facilitates resumption of spontaneous ovulation, which aids conception with reduced risk of miscarriage in overweight or obese women [12].

Sleep has a direct impact on PCOS and normal pregnancy too. Scientific evidence shows that sleep disturbances are closely linked to women's health and sense of well-being and have a significant impact on the menstrual cycle and pregnancy. Sleep deprivation can disrupt the delicate hormonal balance in women, resulting in irregular ovulation and periods and difficulties in conception [13]. At the start of the programme, the subject of this case study had disturbed sleep patterns. This too was addressed by using ayurvedic herbs as part of the Integrated Approach, and by the end of the programme the patient reported being able to get sound sleep.

IV. CONCLUSION

It can be concluded that an integrated approach including appropriate dietary changes, ayurvedic herbs, increased physical activity and appropriate supplementation with vitamins and minerals has a positive impact on overweight subjects with concomitant PCOS. Further, switching to a low GI diet helps improve the body's insulin response.

In this case study, the 'Integrated Approach' was used successfully in managing the patient's PCOS and hypothyroid symptoms, also helping her lose weight significantly, and leading to successful conception. The programme also helped her get relief from GERD, helped improve energy levels and reduce stress levels, as well as gave the patient an overall sense of well-being.

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Anjali Mukerjee –Nutritionist, Researcher, Columnist, Author, Public Speaker, Consultant and Founder Director - Health Total Pvt. Ltd. is one of India's leading Nutritionist and a pioneer in creating health awareness. She along with her team of Nutritionists, Ayurvedic Doctors and Homeopaths has been able to ***successfully manage lifestyle problems like Obesity, Digestive Disorders, High Cholesterol, Type II Diabetes, Hypertension, Menopausal Complaints, Chronic Fatigue, Low Immunity*** etc. with the help of advanced Nutritional Therapy, Ayurveda, Nutritional Medicine, Herbs, Therapeutic lifestyle management, counseling and exercise. She pursued B.Sc. (Chemistry) from Jai Hind College and a PG Diploma in Dietetics from the Institute of Hotel Management, Catering Technology and Applied Nutrition. Then she did her Fellowship in Nutrition and Environmental Medicine (FINEM) from INMA (Indian Nutrition Medical Association). She is also a certified Nutrigenomics Counsellor. She is currently studying Functional Medicine from Functional Medicine University (FMU), USA. With an experience in clinical practice spanning more than three decades, her research work in the field of preventive health care has ***helped more than 5,00,000 patients*** to reap the benefits of non-drug therapy.

