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HEALTH PROFILE OF INFERTILE WOMEN WITH POLYCYSTIC OVARY SYNDROME

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ABSTRACT

Infertility is a special reproductive health defect different from other diseases which is not life threatening, but with detrimental influence on fertility of patients, their families and the whole society.Polycystic Ovarian Syndrome is a metabolic, hormonal and psychosocial disorder with hyperandrogenism and ovulatory disturbances which leads to infertility. The main objective of the study was to determine the incidence of Poly cystic ovarian syndrome in adult women undergoing infertility treatment and assessment of their lifestyle, selected biochemical and clinical features of the infertile women with Polycystic Ovary Syndrome. 100 adult women of age 20-35 years undergoing infertility treatment were selected from infertility clinic of Life line Super Specialty Hospital, Adoor by judgmental sampling after obtaining their prior consent. Among the selected 100 infertile women, the incidence of Polycystic Ovary Syndrome was 55% and 45% had Endometriosis, Uterine fibroids and ovulatory problems. 52.72% of the infertile PCOS women were sedentary and 47.25%were moderately active. Most of the infertile women with PCOS had normal TSH levels and some have slight variations which may be due to regular medications. 87.2% had normal random blood glucose levels and 12.7% were having chances of hyperglycemia. About 60% of infertile women with PCOS had Hirsutism, 83.6% with Acanthosis nigricans, 74.5% having Acne/Oily skin, 69% have Depression/Mood swings/Anger and 36% had craving for sweets. The health profile of infertile women with PCOS was not sound.

KEYWORDS: Infertility, Polycystic Ovary Syndrome, Thyroid Stimulating Hormone, Hirsutism, Acanthosis nigricans.

Infertility is a disease or a condition of the reproductive system and failure to achieve a clinical pregnancy after 12 months or more of regularly unprotected sexual intercourse. Primary female infertility is the inability of a woman to conceive for the first time despite cohabitation and exposure to pregnancy for a period of two years while secondary female infertility is the inability of a woman to conceive following pervious pregnancy despite cohabitation and exposure to pregnancy for a period of two years (WHO,2004). It is estimated that about 10% of the couples suffer from infertility due to one or other reasons. One of the main reasons for the female infertility is Poly Cystic Ovarian Syndrome (PCOS) which accounts for significant healthcare costs, distress and has been found to impact quality of life of patients (Joseph et al., 2016).

Polycystic Ovarian Syndrome is one of the most common reproductive endocrinologicaldisorder with a broad spectrum of clinical manifestations affecting about 6-8% women of reproductive years. PCOS is now recognized as a common, heterogeneous, heritable disorder affecting women throughout their lifetime characterized by hyperandrogenism, ovulatory dysfunction, and polycystic ovaries (Broody, 2014).The clinical features of PCOS are heterogeneous and may change throughout the lifespan, starting from adolescence to postmenopausal age adding to the challenges of accurate diagnosis (Roe &Dokras, 2011).

MATERIALS AND METHODS

The area selected for the study was Infertility Clinic- Lifeline Super Specialty Hospital, situated at Adoor, Pathanamthitta. For the present study 100 women undergoing infertility treatment in the age group of 20 -35 years, primigravida were selected by judgmental sampling. Among them 55 women with PCOS were identified based on Rotterdam criteria(2003) Using an interview schedule, Information on their lifestyle was collected and selected biochemical parameters such as random blood sugar, follicle stimulating hormone and thyroid stimulating hormone were also assessed. Clinical features associated with PCOS like Acanthosis nigricans, Hirsutism, Acne/oily skin, Depression/Mood swings were also studied. The biophysical profile was examined using ultra sound scan.

RESULTS AND DISCUSSION

Biophysical Profile of Infertile Women

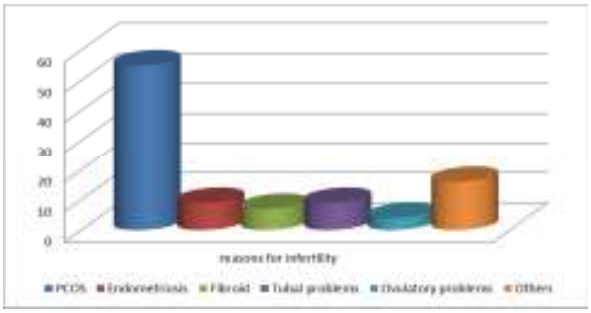

Figure 1: Causes of Infertility

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Figure-1 shows the causes of infertility based on the interpretation of ultra sound scanning image results of the infertile women with PCOS. Results depicts that 55percent of the selected subjects were having PCOS. About 75percent of them had uterine fibroids, 45percent of subjects had some other reasons (problems related to males), 9percent of them had endometriosis, 9percenthave tubal problems, 4percent had ovulatory problems and some were not having a particular problem.

The results of the study by Roupa et al, 2009 showed that the most common cause of female infertility was problems in the fallopian tubes in 27.4% of the cases, while the second most common cause was the infertility by unknown causes, in 24.5%. 53.6% of respondents with infertility of unknown cause had made several attempts of Assisted Reproduction. The third most common cause was menstrual disorders in 20% of the cases, following infertility due to problems in the uterus in 9.1% of the cases. Finally in 2.7% of the participants infertility was found influenced by the age, 2.7% due to sexual disorders and the last cause was the ovarian failure, which was common among the women.

Lifestyle intervention, through dietary improvement and exercise yielding weight loss, remains the cornerstone of effective long term health improvement for women with PCOS who are overweight or obese (Johnson, 2014).

Table 1: Activity pattern of infertile women with PCOS

Activity	PCOS Subjects	
	Number	%
Heavy	0	0
Moderate	26	47.25
Sedentary	29	52.72
Total	**55**	**100**

N= 55

Table – 1 shows the activity pattern of infertile women with PCOS. The infertile subjects were engaged in sedentary and moderate activity. No one were engaged in heavy activity. Among them more than half 52.72percent were involved in sedentary activity and 47.28percent were involved in moderate activity. It means that nowadays women spend most of their time for sleeping, sitting, watching TV and some other entertainments which doesn't need much energy.

A study conducted by Moran et al., 2013 shows that increased energy intake, increased sitting time and no differences in physical activity as well as age, occupation, were independently associated with elevated BMI in PCOS patients. Sedentary behavior which is defined as sitting, lying down, and expending very little energy and light intensity activity, such as standing, self care activities, and slow walking, which require low energy expenditure. Breaks in sedentary time have beneficial association with waist circumference, body mass index, triglyceride levels, and 2 hour glucose levels that are independent of total sedentary time and exercise time (Owen et al., 2010).

Table 2: Exercise pattern of infertile women with PCOS

Exercise Pattern*	PCOS Subjects*	
	Number	%
Regular	16	29.09
4 days a Week	13	23.63
Nil	26	47.27

***p<0.10** **N =55**

Table – 2 depicts the exercise pattern of the infertile women with PCOS. Majority(47.27%) of infertile women with PCOS were not having exercise regularly. Exercise plays a major role in promoting weight loss and became fertile. Only 29.09 percent of the PCOS subjects followed regular exercise pattern and 23.63 percent of them followed an exercise pattern of 4 days a week. Regular exercising along with medical treatment and dietary control with modified healthy lifestyle only can make better changes in infertile women who have PCOS**.**

Table 3: Biochemical profile of infertile women with PCOS

Thyroid function	%	Mean	RBS level	%	Mean
Hyperthyroidism	1.8	-	Hyperglycemic	12.7	114.8±2.30
Normal	81.84	2.17±1.8	Normal	87.2	105.9±3.51
Hypothyroidism	16.36	4.67±0.14	Hypoglycemic	0	0

N = 55

Table – 3 portrays the TSH levels and Random blood sugar levels of infertile women with PCOS. In majority,(81.84percent) thyroid levels were in the range 0.5 – 4.5 IU/L, 16.36percent having thyroid values > 4.5 IU/L and only 1.8percent had thyroid values <0.5 IU/L. Majority of them were having abnormal thyroid function but by medications the TSH levelswere found to be normal. In some others even with medications also TSH levels were found to be higher than normal. Thyroid abnormalities mainly hypothyroidism have some relation with Infertility. The Random Blood Sugar levels of the infertile women with PCOS found that 87.2 percentof infertile women with PCOS were having Blood sugar level in the range of 70-110mg/dl. Remaining 12.7percent only have blood sugar level >110mg/dl. It was clear that increased blood sugar level is not a condition affecting the PCOS infertile subjects. Most of the recent studies found that PCOS is related to insulin deficiency which leads to increased blood sugar level. One important finding was that lower birth weight and earlier age of menarche were associated with IGT in PCOS (Majumdar& Singh, 2009).

Table 4: Clinical Signs and Symptoms of infertile women with PCOS

*Clinical Signs and Symptoms	PCOS Subjects	
	Number	%
Hirsutism	33	60
AcanthosisNigricans	46	83.6
Acne/oily skin	41	74.5
Depression/Mood Swings/Anger	38	69
Craving for Sweets	20	36

N = 55

Table -4 shows the clinical signs and symptoms associated with PCOS and infertility problems. Hirsutism, Acanthosis nigricans, Acne/Oily skin, Depression/mood swings/Anger/ craving for sweets were found to be the main signs and symptoms associated with PCOS. 83.6percent have Acanthosis nigricans, 74.5 percent Acne/Oily skin, 69 percent Depression/ Mood swings/Anger, 60 percent Hirsutism, and 36 percent had craving for sweets. Acanthosis nigricans was found to be the prominent feature among PCOS and acne among non-PCOS. Depression was common among PCOS and non-PCOS infertile women.

Obesity is closely associated with Acanthosis nigricans(AN) and more than half the adults who weigh greater than 20 percentof their ideal bodyweight have lesions consistent with AN. Clinically, the neck is the most commonly affected area. AN also affect eyelids, lips, vulva, mucosal surfaces, dorsal hands and flexural areas in the groin, knees and elbows. The commonest site of involvement was neck in 93.3percent patients, followed by axilla in 66.6percent patients (Puri, 2011).PCOS as hirsute women have been found to have greater emotional problems such as having low self-esteem, feeling moody, worried, and depressed (Joseph et.al,2016).Women with PCOS were at an increased risk for depressive disorders compared with controls. The overall risk of depressive disorders in women with PCOS wasindependent of obesity and infertility. Compared with the non-depressed, PCOS subjects had a higher body mass index and evidence of insulin resistance (Hollinrake et al; 2007).

CONCLUSION

Polycystic ovary syndrome has diverse clinical manifestations that affect the reproductive life and metabolic features.The common manifestations of PCOS; infertility, obesity, acne, hirsutism, menstrual irregularities have a negative impact on mood and psychological status. Hypothyroidism and changes in blood sugar was found among infertile women with PCOS. About 60% of infertile women with PCOS were having distressing symptoms like Hirsutism, Acanthosis nigricans, Acne/Oily skin, Depression/ Mood swings/Anger and craving for sweets. Along with a healthful eating plan, regular physical activity can help with many of the issues and health concerns that surround PCOS by decreasing androgen levels, improving insulin sensitivity and assisting with weight management. Medical nutrition therapy (MNT) can help women with PCOS make and maintain the lifestyle changes. Diagnosing and treating PCOS is important to preserve or restore fertility, reduce symptoms, and prevent complications that can develop in women with PCOS from adolescence to the postmenopausal period.

FUTURE SCOPE

- Effectiveness of LCKD on the nutritional status of infertile women and men
- Problems and complications faced by infertile women with PCOS undergoing assisted reproductive technologies
- Assessment of cardiovascular and metabolic risk among infertile women with PCOS

- Antioxidant status of infertile women with PCOS compared to fertile women

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