

Cures of Polycystic Ovary Syndrome and Their Consequences

Archna Dhasmana* and Indra Rautela

Department of Biotechnology, Uttarakhand college of Applied and Life Sciences, Uttarakhand university, Dehradun, Uttarakhand, India

*Corresponding author: Archna Dhasmana, Department of Biotechnology, Uttarakhand college of Applied and Life Sciences, Uttarakhand university, Dehradun, Uttarakhand, India

Received: August 25, 2020

Published: September 14, 2020

Abstract

In a global scale the frequency of the endocrinopathy disorder Poly cystic Ovary Syndrome (PCOS) has been increasing in a rapid manner. PCOS affects the broad age group of women between 18-40. The patients have different symptoms such as metabolic abnormalities, hyperinsulinemia, hyperandrogenic, irregular periods, premenopause, obesity and chance of cardiovascular problems. female population after by the PCOS is the most frequently

Introduction

In current scenario of health care polycystic ovary syndrome (PCOS) is one of the most common disorder that affect millions of women. According to the clinical term polycystic related to the various pearl sized fluid filled clusters formation in ovaries [1-2]. The admonition sign of PCOS are obesity, Oligo/amenorrhea, hyperandrogenism, polycystic ovary, acne, alopecia, acanthosis nigricans. In 2003, "Rotterdam Meeting" was organized by the European Society for Human Reproduction and Embryology (ESHRE), and the American Society for Reproductive Medicine (ASRM) to discuss the consensus of PCOS, its causes- genetic or metabolic factors and their diagnosis [3]. However, the PCOS is categorized as an endocrinological and stress related disorder, but there has been evidence that illustrate both environmental as well as genetic factors play a role in the etiology. In the previous study, it was reported that the depressive life, abnormal BMI (Body Mass Index) rate are the key reason for the expansion of polycystic ovary in adolescent [4]. It was reported that the approximately 9% female of age group 18-44 have direct impact, and this will result the negative effect on their fertility rate [5-7]. An increasing number of publications conclude that the primary factors for the stimulation of PCOS are the heredity and epigenetic. Therefore, to investigate the distinctive approaches to comprehend this genotypic-to-phenotypic association is crucial for the early diagnosis [8-9]. Gene profiling of the PCOS affected women validates the metabolic

complications (including IR) are similar to their first-degree relatives either male or female that might be inherited [10]. Thus, the genetic abnormalities have a potential contribution and the identification of genomic loci would give considerable insight for better diagnosis and treatment.

Symptoms and Indications

Preliminary symptoms of PCOS are irregular or frequent menstrual cycles, growth of facial hair, facial acne, weight gain, pain in pelvic region, pregnancy failure etc. [11]. Besides that, in severe cases major complications are diabetes, heart disorders, mood sicknesses, fat deposition in upper body part, autoimmune thyroiditis, breast and endometrial cancer [12-15]. Initial symptoms are similar as the common other etiology or health disorders such as hyperprolactinemia, hyperplasia and hypothyroidism [16-18]. Clinically studies reported the progressive indication of PCOS in female are some physiological symptoms such as reproductive complication, metabolic discrepancy, anovulatory infertility, reduced glucose tolerance, insulin resistance independent obesity type II diabetes mellitus apprehension [19-20]. Although studies showed that the PCOS female have abnormal carbohydrate metabolism and insulin resistance diabetes that results in Hirsutism, acanthosis nigricans, autoimmunity, gonadal enlargement, pineal hypertrophy, hyperinsulinemic, hyperdernogenic. The probability

of diabetes mellitus in female suffering from PCOS is upto 15%, more than 70% women have Insulin resistance (IR) symptoms and more than 95% are overweight [21]. These types of IR metabolic complication are the outcome of genetic abnormalities or abnormal functioning of gene that will results in hyperandrogenism, abnormal menstruation cycle, anovulation, and blockage of the reproductive tract. Insulin disrupts the cell signalling pathways- PI3K and FOXO3, which adversely affects the follicular formation and ovaries [22]. Previous studies showed 60-80% PCOS patients are hyperinsulinemia that enhances the Luteinizing hormone (LH) affect for the early maturation of granulosa and releases of androgen hormone at premature age. The theca cells in the female gonads respond the LH by the excessive secretion of androgen hormone or testosterone that stimulates the nearby granulosa cells to convert them into estradiol [23-24]. Therefore, LH and insulin are the two main factors drastically cause early maturation of granulose cells, early ovulation, prematuration of follicles and preovulatory LH surge. The premenopausal syndrome symptoms mostly observe in the female of fertility age group are endocrine abnornalities, androgen secreting neoplasms, hyperandrogenism, hyperprolactinemia, chronic anovulation i.e., polycystic ovary eight or more subcapsular follicular cysts ≤ 10 mm, enlarged ovarian stroma and adrenal 21-hydroxylase deficiency. Therefore, adipose tissue dysfunction plays an essential role in hyperinsulinemia to hyperandrogenism through the stimulation of ovarian androgen secretion and inhibition of hepatic sex hormone-binding globulin production.

Treatments

The treatment for PCOS should be vary from person to person and they are based on their physiological conditions e.g., hyperinsulinemia, irregular menstrual cycles, infertility, and obesity [25]. In most cases patient's insulin resistance and contraceptive pills prescribed as medication to cure metabolic problem and to regulate the hormonal balance. Intake of oral contraceptive pills (OCPs), Clomiphene citrate, pineol and inositol powder prescribed to diminish the risk of gestational diabetes and other visible physiological symptoms [4-26]. Hormonal therapy also recommended for inhibiting the effect of testosterone in cystic development. Besides that, to overcome the infertility problems high doses of folic acid has been given to POCS female before her conception. Regular intake of combined OCPs with hormonal therapy like progesterone showed better effects in the suppression of pro-inflammatory cytokines and, at the same time reduce the testosterone levels in female body [27-28]. Therefore, OCPs has dual consequence specifically to improve the hormonal imbalance and diminution of inflammation [29]. Metformin is a well-known anti-inflammatory drug recommended to cure the infertility and control irregular menstrual cycle in women [29-30]. In a case study of woman suffering from PCOS and having genetically abnormality

obesity and diabetes treated with Metformin therapy enhances the insulin sensitivity and reduces the risk of diabetes. The long term effect of drug enhances the ovulation, improve menstrual cycle, and suppress the level of serum androgen. Hormonal therapy shows best outcome but steroid drug results overweight, therefore anti-obesity drug and surgery or laparoscopy is recommended for the treatment of obesity in PCOS women. PCOS is developed and expended with time, thus for effective treatment it requires more time and regular medication for a particular phase. On the other hand, to overcome the obesity proper health management, balanced diet and systematic routine are the primary approach are preeminent options to cure PCOS [31].

Conclusion

In conclusion, we found that the key factor behind the PCOS is not the single one it's a multiple-factorial disorder. Hence, the primary therapies are stress free life and proper management of lifestyle that will directly improve the metabolic complications. In general the better lifestyle management overcome the reproductive abnormalities, improve ovulatory function and pregnancy rate but till date researcher does not have a balanced diet plan for PCOS patients. Preliminary study data also confirmed that the Yoga and meditation therapy significantly reduces the PCOS rate as compare to the medication as well as improves the pregnancy and live-birth rates but still further research is needed [32-33]. Thus, healthy life style, diet and yoga therapy may have a synergistic effect on the suppression of PCOS and to improve the quality of women life.

References

- Stepto NK, Cassar S, Joham AE, Hutchison SK, Harrison CL, et al. (2013) Women with polycystic ovary syndrome have intrinsic insulin resistance on euglycaemic- hyperinsulaemic clamp. *Hum Reprod* 28(3): 777-784.
- Yildiz BO, Bozdag G, Yapici Z, Esinler I, Yarali H, et al. (2012) Prevalence, phenotype and cardiometabolic risk of polycystic ovary syndrome under different diagnostic criteria. *Hum Reprod* 27(10): 3067-3073.
- Thessaloniki (2008) ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group. Consensus on infertility treatment related to polycystic ovary syndrome. *Human Reproduction*. 89(3): 502-522.
- Moran L, Gibson-Helm M, Teede H, Deeks A (2010) Polycystic ovary syndrome: abiopsychosocial understanding in young women to improve knowledge and treatment options. *J Psychosom Obstet Gynaecol* 31(1): 24-31.
- Spritzer PM (2014) Polycystic ovary syndrome: reviewing diagnosis and management of metabolic disturbances. *Arq Bras Endocrinol Metabol* 58(2): 182-187.
- Barry JA, Aziz MM, Hardiman PJ (2014) Risk of endometrial, ovarian and breast cancer in women with polycystic ovary syndrome: a systematic review and meta-analysis. *Hum Reprod Update* 20(5): 748-758.
- Azziz R, Woods KS, Reyna R, Key TJ, Knochenhauer ES, et al. (2004) The prevalence and features of the polycystic ovary syndrome in an unselected population. *J Clin Endocrinol Metab* 89(6): 2745-2749.
- Azziz R, Carmina E, Dewailly D, Diamanti Kandarakis E, Escobar Morreale HF, et al. (2006) Positions statement: criteria for defining polycystic

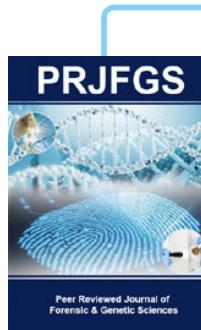
- ovary syndrome as a predominantly hyperandrogenic syndrome: an Androgen Excess Society guideline. *J Clin Endocrinol Metab* 91(11): 4237-4245.
9. Diamanti-Kandarakis E, Christakou C, Marinakis E (2012) Phenotypes and environmental factors: their influence in PCOS. *Current pharmaceutical design*.18 (3): 270-82.
 10. Dunaif A, Book CB (1997) Insulin resistance in the polycystic ovary syndrome. In *Clinical Research in Diabetes and Obesity* 249-274.
 11. Legro RS, Arslanian SA, Ehrmann DA, Hoeger KM, Murad MH, et al. (2013) Diagnosis and treatment of polycystic ovary syndrome: An Endocrine Society clinical practice guideline. *The Journal of Clinical Endocrinology & Metabolism* 98(12): 4565-4592.
 12. Palomba S, Santagni S, Falbo A, La Sala G B (2015) Complications and challenges associated with polycystic ovary syndrome: current perspectives. *International journal of women's health* 7: 745-763.
 13. Ding D, Chen C, Wang W, JH, Lin SZ (2018) Association between polycystic ovarian syndrome and endometrial, ovarian, and breast cancer: A population-based cohort study in Taiwan. *Medicine* 97(39).
 14. Harris HR, Terry KL (2016) Polycystic ovary syndrome and risk of endometrial, ovarian, and breast cancer: A systematic review p. 2: 14.
 15. Nicandri KF, Hoeger K (2012) Diagnosis and treatment of polycystic ovarian syndrome in adolescents. *CurrOpinEndocrinol Diabetes Obes* 19(6): 497-504.
 16. Goodarzi MO, Dumesic DA, Chazenbalk G, Azziz R (2011) Polycystic ovary syndrome: etiology, pathogenesis and diagnosis. *Nat Rev Endocrinol* 7(4): 219-231.
 17. March WA, Moore VM, Willson KJ, Phillips DI, Norman RJ, et al. (2010) The prevalence of polycystic ovary syndrome in a community sample assessed under contrasting diagnostic criteria. *Hum Reprod* 25(2): 544-551.
 18. Wang ET, Cirillo PM, Vittinghoff E, Bibbins DK, Cedars M, et al. (2011) Menstrual irregularity and cardiovascular mortality. *J Clin Endocrinol Metab* 96(1).
 19. Dunaif A, Segal KR, Futterwei tW, Dobrjansky A (1989) Profound peripheral insulin resistance, independent of obesity, in polycystic ovary syndrome. *Diabetes* 38(9):1165-74.
 20. Ovalle F, Azziz R (2002) Insulin resistance, polycystic ovary syndrome, and type 2 diabetes mellitus. *Fertil Steril*.77: 1095-105.
 21. Boomsma CM, Eijkemans MJ, Hughes EG, Visser GH, Fauser BC, et al. (2006) A meta-analysis of pregnancy outcomes in women with polycystic ovary syndrome. *Hum Reprod Update*.12 (6): 673-683.
 22. Li T, MH, Chen W, LiL, Xiao Y, et al. (2017) Role of the PI3K-Akt signaling pathway in the pathogenesis of polycystic ovary syndrome. *Reproductive sciences* 24(5): 646-55.
 23. Baillargeon JP, Nestler JE (2006) Polycystic ovary syndrome: a syndrome of ovarian hypersensitivity to insulin? *The Journal of Clinical Endocrinology & Metabolism* 91(1):22-24.
 24. Rosenfield RL, Ehrmann DA (2016) The pathogenesis of polycystic ovary syndrome (PCOS): the hypothesis of PCOS as functional ovarian hyperandrogenism revisited. *Endocrine reviews* 37(5): 467-520.
 25. Sirmans SM, Pate KA (2014) Epidemiology, diagnosis, and management of polycystic ovary syndrome. *Clinical epidemiology* 6:1.
 26. Misso ML, Wong JL, Teede HJ (2012) Aromatase inhibitors for PCOS: a systematic review and meta-analysis. *Hum Reprod Update* 18(3): 301-312.
 27. Petitti DB (2003) Combination estrogen-progestin oral contraceptives. *New England Journal of Medicine* 349(15): 1443-1450.
 28. Giudice LC (2010) Endometriosis. *New England Journal of Medicine*. 362(25): 2389-2398.
 29. Johnson NP (2014) Metformin use in women with polycystic ovary syndrome. *Annals of translational medicine* 2(6): 56.
 30. Nirav RS (2017) Current Management on PCOS (Polycystic Ovary Syndrome)/Stein-Leventhal Syndrome. *Invest Gynecol Res Women's Health*.
 31. Orio F, Tafuri D, Ascione A (2014) Lifestyle changes in the management of adulthood and childhood obesity. *Minerva Endocrinol* 41(4).
 32. PatilAnushree D, VaidyaRama A, PathakSatish D, ChauhanSanjay L, SurveSuchitra V, er al. (2018) Yoga Therapy: The Fourth Dimension in the Multidisciplinary Management of Women with Polycystic Ovary Syndrome, A Narrative Review. *The Indian Practitioner* 71(4): 45-51.
 33. Lisa J, Morana, RenatoPasquali, Helena J, Teede, et al. (2009). Treatment of obesity in polycystic ovary syndrome: a position statement of the Androgen Excess and Polycystic Ovary Syndrome Society. 92(6): 1966-1982.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here: [Submit Article](#)

DOI: [10.32474/PRJFGS.2020.04.000183](https://doi.org/10.32474/PRJFGS.2020.04.000183)



Peer Reviewed Journal of Forensic & Genetic Sciences

Assets of Publishing with us

- Global archiving of articles
- Immediate, unrestricted online access
- Rigorous Peer Review Process
- Authors Retain Copyrights
- Unique DOI for all articles