

Data 698: Literature Review
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March 28, 2023
Literature Review

Using Machine Learning Algorithm to predict the likelihood of PCOS based on demographic, clinical and lifestyle factors

A review: Brief insight into Polycystic Ovarian Syndrome [1]

This review highlights a brief overview of risk and pathophysiological treatment with drugs acting on ovulation, infertility plus clinical symptoms of PCOS.

Racial and ethnic differences in the metabolic response of polycystic ovary syndrome [2]

This article speaks on the racial and ethnic disparities in the metabolic dysfunction suffered by PCOS and whether markers of metabolic function differ in nondiabetic Asian American (AS), African American (AA), Hispanic White (HW), compared to non-Hispanic White (NHW) women with PCOS.

DHEA, DHEAS and PCOS [3]

This article examines the effect of excess adrenal precursor androgen (APA) production on women with PCOS. The extra-adrenal factors, including obesity, insulin and glucose levels, and ovarian secretions, play a limited role in the increased APA production observed in PCOS.

A study of hormonal and anthropometric parameters in polycystic ovarian syndrome [4]

The objective of this study was to compare the hormonal and anthropometric parameters in women with PCOS and healthy control group. Materials and Methods: This study was carried out in the Department of Pathology, Dr. D Y Patil Medical College and Research Centre, Pune, Maharashtra. Fifty female patients aged 16-40 years diagnosed with PCOS by known criteria were included in the study and compared with 50 healthy control group females. Conclusion: Elevated levels of thyroid-stimulating hormone, LH, FSH, and prolactin along with increased body mass index and waist-to-hip ratio were predictors of PCOS and the early metabolic abnormalities.

Polycystic ovarian syndrome (PCOS) awareness among young women of central India [5]

Cross sectional study was performed on 400 women of age group 18-30 years either studying in Colleges or working in Indore city. Written informed consent was obtained and simple random technique was applied for selection of study participants. Pre-designed, pre-tested, semi-structured questionnaire was used for data collection. The data collected were analyzed through percentages and frequencies using Excel. Relevant statistical test was applied and p value was calculated where ever required and considered statistically significant when it is <0.05 .

Clinical characteristics of polycystic ovary syndrome in Indian women [6]

Polycystic ovary syndrome (PCOS) is common diagnosis in women presenting with infertility. All the dimensions of PCOS have not been completely explored. Many studies have tried to characterize the exact presentation of the disease. In this study we studied clinical features of PCOS in Indian women to characterize different phenotypes of this syndrome. Prevalence of acanthosis nigricans (AN) as surrogate marker of insulin resistance, obesity, hirsutism and hypothyroidism in PCOS women have been simultaneously studied. Materials and Methods: Present work is a non comparative cross-sectional open label study carried out over a period of 18 months in an endocrinology hospital in western Maharashtra, India. Results and Conclusion: Authors conclude that PCOS occurs both in obese and non-obese women; AN and hirsutism occur in equal proportion of patients. AN is correlated with obesity. Hormonal dysfunctions in PCOS manifested together or independently. PCOS women can be sub grouped based on clinical features suggestive of endocrinological malfunctions and can be investigated accordingly for selection of appropriate treatment modalities.

A Novel Approach for Polycystic Ovary Syndrome Prediction Using Machine Learning in Bioinformatics [7]

The study reveals that the dataset features prolactin (PRL), blood pressure systolic, blood pressure diastolic, thyroid stimulating hormone (TSH), relative risk (RR-breaths), and pregnancy are the prominent factors having high involvement in PCOS prediction. The research study helps the medical community overcome the miscarriage rate and provide a cure to women through the early detection of PCOS.

Genetic basis of polycystic ovary syndrome (PCOS): Current Perspectives [8]

The present study was designed to review the current genetic understanding of the disease. In the present review, we have discussed the clinical spectrum, the genetics, and the variants identified as being associated with PCOS. The mechanisms by which variants in the genes confer risk to PCOS and the nature of the physical and genetic interaction between the genetic elements underlying PCOS remain to be determined. Elucidation of genetic players and cellular pathways underlying PCOS will certainly increase our understanding of the pathophysiology of this syndrome. The study also discusses the status of the treatment modalities for PCOS, which is important to find new ways of treatment.

Exercise in polycystic ovarian syndrome: An evidence-based review [9]

Exercise is proved to be a best therapeutic and supportive management in PCOS patients in reducing infertility. Exercise reduces the risk and restores fertility and quality of life in PCOS patients through inducing hormonal changes of testosterone, androstenedione, combating obesity, metabolic syndrome, reducing inflammatory markers, and increasing immunity. Earlier systematic reviews and metaanalyses have proved the effectiveness of exercise in PCOS. This current systematic review will add to the current evidence of cumulative effects on exercise and shall be an update to the current proof of physical activity in PCOS patients.

MON-034 Impact of Race and Obstructive Sleep Apnea on Glucose and Insulin Regulation in Women with PCOS [10]

The prevalence of prediabetes and diabetes is substantially higher in PCOS women with obstructive sleep apnea (OSA) compared to PCOS women without OSA^{1,2,3}. Prior studies, however, did not examine the complex interaction between race and OSA on metabolic function in PCOS. We sought to determine if the impact of OSA on glucose and insulin metabolism is affected by race. We studied non-Hispanic white (NHW) (n=53) and African American (AA) (n=48) women with PCOS. Following an overnight polysomnogram (PSG), PCOS women (NHW without OSA n=40; NHW with OSA n=13; AA without OSA n=36; AA with OSA n=12) had a 2-h 75-g oral glucose tolerance test (OGTT) with blood sampling every 30 minutes for measurement of glucose, insulin, and C-peptide concentrations.

A Critical Study of Polycystic Ovarian Syndrome (PCOS) Classification Techniques [11]

In order to help in the diagnosis of PCOS, classification techniques such as Naïve Bayes, Decision Tree and Neural Networks can be applied to classify real time PCOS data based on an established training set. In this paper, an attempt has been made to compare the accuracies and other performance measures of the prior mentioned data mining techniques to predict whether a person is likely to have PCOS or not through.

Phenotype and metabolic profile of South Asian women with polycystic ovary syndrome (PCOS): results of a large database from a specialist Endocrine Clinic [12]

This is the first study to determine the distribution of phenotypes of polycystic ovary syndrome (PCOS) and their relationship to the MetS among indigenous South Asians.

A proteomic analysis identifies candidate early biomarkers to predict ovarian hyperstimulation syndrome in polycystic ovarian syndrome patients [13]

Ovarian hyperstimulation syndrome (OHSS) is a potentially life-threatening, iatrogenic complication that occurs during assisted reproduction. Polycystic ovarian syndrome (PCOS) significantly increases the risk of OHSS during controlled ovarian stimulation. Therefore, a more effective early prediction technique is required in PCOS patients. Quantitative proteomic analysis of serum proteins indicates the potential diagnostic value for disease. In the present study, the authors revealed the differentially expressed proteins in OHSS patients with PCOS as new diagnostic biomarkers. The promising proteins obtained from liquid chromatography-mass spectrometry were subjected to ELISA and western blotting assay for further confirmation. A total of 57 proteins were identified with significant difference, of which 29 proteins were upregulated and 28 proteins were downregulated in OHSS patients. Haptoglobin, fibrinogen and lipoprotein lipase were selected as candidate biomarkers. Receiver operating characteristic curve analysis demonstrated all three proteins may have potential as biomarkers to discriminate OHSS in PCOS patients. Haptoglobin, fibrinogen and lipoprotein lipase have never been reported as a predictive marker of OHSS in PCOS patients, and their potential roles in OHSS occurrence deserve further studies. The proteomic results reported in the present study may gain deeper insights into the pathophysiology of OHSS.

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