Journal of Population Therapeutics & Clinical Pharmacology

Pregnancy outcome in women with polycystic ovarian syndrome.

[1]Dr. SAKEENA, PG Trainee, (FCPS), PUMHS, OBGYN

[2]Mumtaz, Women Medical Officer, MBBS, MCPS, (FCPS). Civil hospital Karachi, Department of Obs and Gynae

[3]Nousheen khaleeq, senior registrar, M.S Pir abdul qadir shah Jeelani institute of medical sciences gambat. OBGYN

[4]AMBREEN NAZ, Assistant professor fcps, UMDC, OBGYN

[5]Hafiza Khatoon, assistant professor fcps, Pir abdul qadir shah Jeelani institute of medical sciences gambatOBGYN

[6]RAISHEM ALI, Associate professor, FCPS, PUMHS, OBGYN

[7]Naseem mallah, Dr Naseem mallah wmo and RHS A centr moro population welfare department, naseem_mallah@yahoo.com

INTRODUCTION:

PCOS, or polycystic ovary syndrome, is a common hormonal disorder among women of reproductive age. PCOS can have a significant impact on fertility, leading to difficulties in conceiving and carrying a pregnancy to term. Pre-pregnancy, antenatal, and intrapartum care should focus on reducing these risks

OBJECTIVE: The objective of our study is to

Determine pregnancy outcomes in women with polycystic ovarian syndrome (PCOs).

METHODOLOGY:

DESIGN: Descriptive Cross-sectional.

SETTING: MCH PUMHS, OBSTETRICS & GYNECOLOGY WARD UNIT II.

SAMPLING TECHNIQUE: CONSEQUETIVE NON PROBABLITY.

DURATION: FROM 06-11-2023 TO 05-05-24.

METHOD: After approval from the ethical committee PUMHS, women consented to the study from OPD, and emergencies, were selected. We fulfilled their bio-sociodemographic characteristics and physical activity-related questionnaire. Maternal outcome (gestational diabetes, hypertension, pre-eclampsia, and mode of delivery), perinatal outcome such as LBW, prematurity, meconium aspiration, NICU admission, and mortality assessed. Data was entered and analyzed into SPSS version 25.

RESULT: The mean age of patients seen is 26.79, around half of subjects having BMI more than 25, with 14.3% experiencing gestational hypertension, 12.7% having gestational diabetes, 15.9% undergoing C-section deliveries, 28.6% born with low birth weight (LBW), with 33% being preterm births, 49.2% receiving low APGAR scores, 34.9% requiring NICU admission, 25.4% suffering from meconium aspiration, and 12.7% resulting in miscarriages.

In conclusion: Healthcare providers must be aware of the potential risks associated with PCOS in pregnant women, such as gestational hypertension. By monitoring and addressing these risks early on, we can improve outcomes for both mothers and their children

Introduction

The pregnancy outcomes for women with polycystic ovarian syndrome (PCOS) can be complex and vary based on individual circumstances.

PCOS is a prevalent condition affecting women of reproductive age worldwide. The global prevalence of PCOS varies widely due to different diagnostic criteria, but studies generally report rates ranging from 4% to 20%[1], with some statistics indicating a prevalence of 6% to 21%[2]. Factors such as ethnicity, regional health practices, and diagnostic criteria (NIH, Rotterdam, AE-PCOS Society) influence these numbers[3,4].

In pregnancy, PCOS is associated with various complications and outcomes. Women with PCOS may have a higher prevalence of adverse maternal and neonatal outcomes compared to women without PCOS. However, some studies indicate that the differences may not be statistically significant[5]. Conditions such as gestational diabetes, pre-eclampsia, premature birth, and a greater likelihood of cesarean delivery are more common among pregnant women with PCOS, impacting both mother and child.

The global incidence of PCOS is increasing, influenced by lifestyle changes like sedentary habits, poor diet, and rising obesity. Enhanced awareness and improved diagnostic techniques also contribute to this trend.

Reviews of the literature reveal that women with PCOS have a greater risk of negative pregnancy outcomes than those without the condition. Research by Palomba et al[6]. suggests an increased risk of miscarriage among women with PCOS

PCOS prevalence in Pakistan is reported to be significantly high, ranging from 20-33% in the general population. Treatment of PCOS requires a multidimensional therapeutic approach due to the various associated comorbidities. Lifestyle alterations, including weight loss, are considered crucial in managing PCOS. Studies have shown that women with PCOS are more prone to depression, anxiety, and other psychological issues, adding complexity to their treatment.

Studying PCOS is crucial as it allows for early identification and management of the syndrome, thereby improving pregnancy outcomes for affected women. Furthermore, understanding the implications of PCOS on pregnancy can aid in developing targeted

interventions and treatment strategies to minimize the associated risks. Therefore, it is imperative to continue researching and studying PCOS to improve the reproductive health of women affected by this syndrome.

By analyzing the data collected, we hope to gain a better understanding of the factors that may contribute to successful pregnancies in women with PCOS. This research will not only benefit individual patients, but also contribute to the broader medical community's knowledge of how to support women with PCOS during pregnancy best. Ultimately, our goal is to improve the reproductive health outcomes for women with PCOS and provide them with the necessary resources and support to achieve their desired family planning goals.

OBJECTIVE: The objective of our study is to

Determine pregnancy outcomes in women with the polycystic ovarian syndrome.

MATERIAL AND METHODS:

Study Design: Cross-sectional study

Settings: The study was conducted at the Department of Obstetrics and Gynecology, PUMHS Nawab Shah.

Duration of Study: Six months from the period of 06-11-2023 TO 05-05-24.

The sample size is calculated by using WHO sample size determination software.

Inclusion and exclusion criteria

Women with diagnosed PCOs will be included in this study while the Following women will be excluded:

1. Multiple pregnancy
2. Chronic Diabetes
3. Chronic hypertension
4. Renal disease
5. Cardiovascular disease

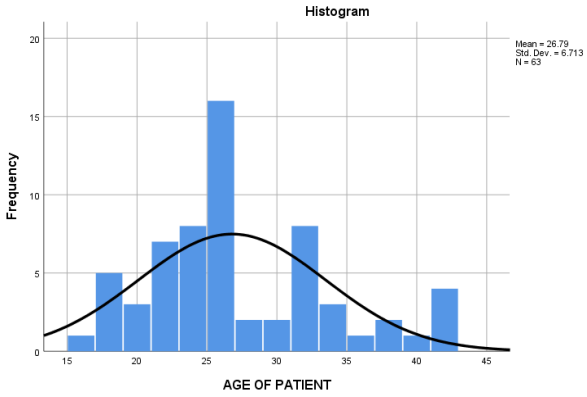
Sample Technique: Non-probability convenient sampling.

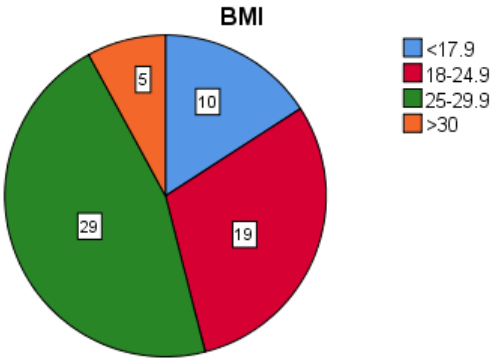
DATA COLLECTION PROCEDURE:

This study will be conducted after approval from the PEOPLE MEDICAL UNIVERSITY OF HEALTH SCIENCE FOR WOMEN SHAHED BENAZIR ABAD NAWABSHAH Ethical Review Committee. Women will be selected from OPD and Emergency Department of Obstetrics & Gynecology, PUMHS OBGYN DEPT: fulfilling the inclusion criteria. An informed consent will be taken from women before starting the recruitment process. Their bio-sociodemographic characteristics and physical activity-related questionnaire were filled. Maternal outcome (gestational diabetes, hypertension, pre-eclampsia, and mode of delivery), perinatal outcome such as LBW, prematurity, meconium aspiration, NICU admission, and mortality assessed. Data will be inserted and analyzed using SPSS version 25. Frequency and percentages will be reported for categorical variables like

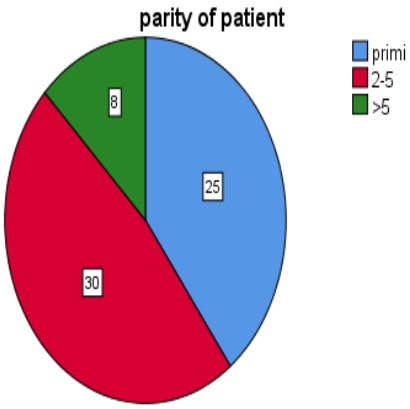
lack of information, parity, and residency while mean, standard deviations will be reported for continuous variables like age.

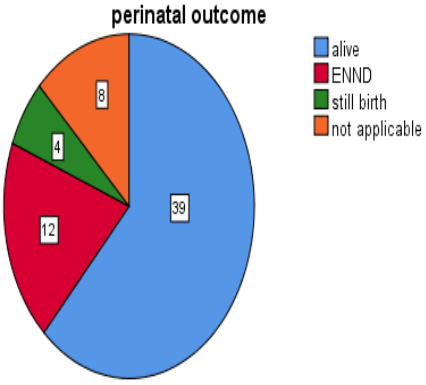
RESULT: The mean age of patients seen is 26.79, around half of subjects having BMI more than 25, with 14.3% experiencing gestational hypertension, 12.7% having gestational diabetes, 15.9% undergoing C-section deliveries, 28.6% born with low birth weight (LBW), with 33% being preterm births, 49.2% receiving low APGAR scores, 34.9% requiring NICU admission, 25.4% suffering from meconium aspiration, and 12.7% resulting in miscarriages.





Pregnancy outcome in women with polycystic ovarian syndrome.





Discussion:

Polycystic ovary syndrome (PCOS) significantly impacts pregnancy outcomes, posing unique challenges for both maternal health and fetal development.

The mean age of patients seen in the current study is 26.79. As compared to other studies our study found a slightly younger population of women with PCOS. This may indicate that PCOS is being diagnosed at a younger age, allowing for earlier interventions and management strategies. Additionally, our study showed that women with PCOS had a higher incidence of pregnancy complications, highlighting the importance of personalized care plans for this population. Through our research, we aim to improve outcomes for both mothers and babies affected by PCOS during pregnancy[7,8].

33% of the pregnant population in this study delivered preterm and 28.6% of babies were born with LBW.

There is controversy regarding the prevalence of small-for-gestational-age (SGA) babies in women with PCOS. Some studies suggest a relationship between being born SGA and developing PCOS later in life, while others found no association[9,10,11,12]

Our study shows that 14.3% of patients develop gestational hypertension. 29% of patients were overweight and 19% obese.

The association between polycystic ovarian syndrome (PCOS) and gestational hypertension in pregnant patients is significant, especially among obese and underweight women. PCOS increases the risk of hypertensive disorders in pregnancy, primarily in the first pregnancy. However, this association is not observed in normal-weight and slightly overweight women. Further investigation is needed to understand the different phenotypes of PCOS that may contribute to this risk[13].

12.7% of patients developed gestational diabetes in this study. The same finding is observed in a study of Iranian women, with a history of infertility and PCOS manifesting an increased risk of developing gestational diabetes mellitus (GDM) compared to women without PCOS. This increased risk is also given by several researches[14,15,16].

This study shows subjects are more prone to have a caesarean section (31%).

In a meta-analysis, done by Jun Z et al, we found, that women with polycystic ovary syndrome (PCOS) have a significantly elevated risk of cesarean section compared to normal pregnant women[17]. However, some studies have conflicting results regarding this association[18].

28.6% of babies were low birth in this study. Studies have shown conflicting results regarding the association between birth weight and PCOS in pregnant patients. Some studies suggest no difference in birth weight between women with PCOS and controls, while others indicate that both low and high birth weights may be linked to PCOS development. Additionally, maternal conditions like pre-gestational or gestational diabetes may increase the risk of PCOS in offspring. The presence of PCOS may be associated with both low and increased birth weights, suggesting complex fetal programming pathways. However, the association between high birth weight and PCOS is explained by the hyperinsulinemia state of pregnant women with diabetes and elevated fetal androgen levels. The study has limitations due to differences in study designs and challenges in choosing control groups[19,20]

49.2% of babies born had low APGAR in the study duration. PCOS was also identified as an independent risk factor for lower 1-minute APGAR scores in regression analysis[21,22]

Pregnant women with polycystic ovary syndrome (PCOS) may experience perinatal outcomes, low birth weight babies, low APGAR score at 5 minutes, and NICU admission[23,24,25] as seen by our study where 34.9% of the babies get admission to NICU for different reasons. Meconium aspiration was a reason in 25.4% of babies the same finding supported by other studies[26,27.]

12.7% of pregnancies ended up in miscarriage before starting their journey towards full term. Multiple studies do show the same relation of higher risk of subsequent miscarriage in patients with PCO compared to those without PCOS (71.4% versus 53.6%, respectively)[28,29]

By implementing regular monitoring and personalized treatment plans, healthcare providers can help mitigate the risks and complications associated with PCOS during pregnancy. Healthcare professionals must stay informed about the latest research and guidelines to provide the best care for this patient population. By working closely with patients and their healthcare team, we can ensure that pregnant women with PCOS receive the support and interventions they need to have a safe and healthy pregnancy.

References:

1. Chen, W., Yang, Q., Hu, L., Wang, M., Yang, Z., Zeng, X., & Sun, Y. (2023). Shared diagnostic genes and potential mechanisms between Polycystic Ovary Syndrome (PCOS) and recurrent implantation failure were identified through integrated transcriptomic analysis and machine learning.
2. Kjerulff LE, Sanchez-Ramos L, Duffy D. Pregnancy outcomes in women with polycystic ovary syndrome: a meta-analysis. Am J Obstet Gynecol. 2011 Jun;204(6):558.e1-6. doi: 10.1016/j.ajog.2011.03.021. Epub 2011 Mar 16.
3. McDonnell R, Hart RJ. Pregnancy-related outcomes for women with polycystic ovary syndrome. Womens Health (Lond). 2017 Dec;13(3):89-97. doi: 10.1177/1745505717731971. Epub 2017 Sep 22. PMID: 28934902; PMCID: PMC7789031.
4. Rashid DA, Bardan RM. Use of two insulin sensitizers in ovulation induction for women with polycystic ovary syndrome. RMJ. 2023;48(2):370-374. doi: 10.5455/rmj.20230121104735.
5. Palomba S, de Wilde MA, Falbo A, Koster MP, La Sala GB, Fauser BC. Pregnancy complications in women with polycystic ovary syndrome. Hum Reprod Update. 2015 Sep-Oct;21(5):575-92. doi: 10.1093/humupd/dmv029. Epub 2015 Jun 27. PMID: 26117684.
6. Smithson DS, Vause TDR, Cheung AP. Ovulation Induction in Polycystic Ovary Syndrome. SOGC Clin Pract Guideline. 2018 Jul;40(7):978-987. doi: 10.1016/j.jogc.2017.12.004.
7. Didier Dewailly "Long-term complications of polycystic ovary syndrome (PCOS). " IA d'endocrinologie, vol. 75, no. 4. Long-term complications of polycystic ovary syndrome (PCOS) n.d.
8. Alessandra G, Olga P, Gianluca C, Michele F, Renato Pasquali "Maternal polycystic ovary syndrome may be associated with adverse pregnancy outcomes. Maternal polycystic ovary syndrome may be associated with adverse pregnancy outcomes in 2010.
9. Homburg Roy "Pregnancy complications in P. Pregnancy complications in PCOS 20 06.
10. Paula A, Michael JM, William RMeyer "Impaired glucose tolerance in pregnant w omen with polycystic ovary syndrome. Impaired glucose tolerance in pregnant w omen with polycystic ovary syndrome 1999.
11. Angela F, Tiziana R, Achille T, Francesco O, Fulvio Zullo "Pregnancy in women with polycystic ovary syndrome: the effect of different phenotypes and features on ob stetric and neonatal outcomes. Pregnancy in women with polycystic ovary syndro me: the effect of different phenotypes and features on obstetric and neonatal ou tcomes 2010.

12. D. C, K. R, M. H, M. F, J. Zivny "Pregnancy outcome in women with P and in contro ls matched by age and weight. Pregnancy outcome in women with PCOS and in c ontrols matched by age and weight 200
13. Lønnebotn MGKNBBJABMHRJEL et al. Polycystic ovary syndrome, body mass index and hypertensive disorders in pregnancy 2018.
14. Vincent WW. Impact of comorbid polycystic ovarian syndrome and gestational diabetes mellitus on pregnancy outcomes: a retrospective cohort study 2020.
15. Fatemeh S, Arezoo A, Roya H, Fereshteh N, Zahra Z. Gestational diabetes mellitus risk factors in women with polycystic ovary syndrome (PCOS) 2014.
16. Marja V, Johan GE, Mika G, Hannele L, Hilkka I, Aini B, et al. Polycystic ovary syndrome and risk factors for gestational diabetes 2018.
17. Jun Z, Li HP, Mu JL, Xiao JF, Ru DH, Hong YC. Obstetric complications in women with polycystic ovary syndrome: a systematic review and meta-analysis 2013.
18. Helle K, Lena S, Gunvor E-O, Henrik F, Olof S. Risk of adverse pregnancy outcomes in women with polycystic ovary syndrome: population-based cohort study 2011.
19. E. VHH, L. JS, R. CP, C. BL. Birthweight and PCOS: systematic review and meta-analysis 2017.
20. Danila B, Lucilla R, Ippolita PP, Riccardo S, Paolo C, Germana G, et al. Ovarian hyperandrogenism in adolescents and young women with type I diabetes is primarily related to birth weight and body mass index 2011.
21. Jun F, Cuiyin Y, Xiaojuan J, Yanping L, Wenjie Hou "Adverse E of POS on PO in W with GDMARS. Adverse Effects of Polycystic Ovary Syndrome on Pregnancy Outcomes in Women with Gestational Diabetes Mellitus: A Retrospective Study 2024.
22. Zatollah A, Fatemeh B, Seyed AT, Helen A, Shahintaj Aramesh "Comparing pregnancy, neonatal outcomes in women with different phenotypes of polycystic ovary syndrome and healthy women: a prospective cohort study. Comparing pregnancy, childbirth, and neonatal outcomes in women with different phenotypes of polycystic ovary syndrome and healthy women: a prospective cohort … 2020.
23. Ahmad B, Eva S, Haitham B, Michael HDahan "Associations between polycystic ovary syndrome and adverse obstetric and neonatal outcomes: a population study of 9. 1 million births. Associations between polycystic ovary syndrome and adverse obstetric and neonatal outcomes: a population study of 9.1 million births 2020.
24. Haritha S, Murali S. Pregnancy outcome in women with polycystic ovary syndrome 2020.
25. Akramsadat D, Razieh DF, Maryam E, Afsar STB, Farimah Shamsi "Maternal and neonatal outcomes among pregnant women with different polycystic ovary

syndrome phenotypes: A cross-sectional study. Maternal and neonatal outcomes among pregnant women with different polycystic ovary syndrome phenotypes: A cross-sectional study 2020.

26. Md JI, Robiul I, Palash KBiswash "Association between POS (PCOS) and PC. Association between Polycystic Ovary Syndrome (PCOS) and Pregnancy Complications 2024.
27. Abd E, Nawal K, Sayed AM, Entisar MY, Sahar FAGawad "Pregnancy O in W with POS. Pregnancy Outcomes in Women with Polycystic Ovarian Syndrome 2015.
28. Li-Ru C, Kuo-Hu Chen "The risk of subsequent miscarriage in pregnant women with prior polycystic ovarian syndrome: A nationwide population-based study. The risk of subsequent miscarriage in pregnant women with prior polycystic ovarian syndrome: A nationwide population-based study 2021.
29. Marlene H, Katharina W, Stefan G, Nina R, Rodrig M, Rudolf S, et al. The prevalence and impact of polycystic ovary syndrome in recurrent miscarriage: a retrospective cohort study and meta-analysis 2020.