

Utility of Preconception Counselling in Detection of Undiagnosed Medical Disorders in Preconception Period

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Received: 25-07-2023 / Revised: 28-08-2023 / Accepted: 30-09-2023

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Conflict of interest: Nil

Abstract:

Background: Preconception therapy is a window of opportunity for health promotion since women are more motivated to change unhealthy behaviours at this time. Therefore, preconception counselling should be offered at all medical appointments.

Objective: The purpose of the current study was to ascertain the prevalence of undiagnosed medical disorders during the preconception period and to establish if these women need rubella vaccination.

Methods: 56 women who visited the Gynaecology Out Patient Department for preconception counselling made up the sample population in this hospital-based cross-sectional study. Data collection was done using a semi-structured, previously tested interview schedule, which was then followed by systematic and general assessments and investigations.

Results: The most prevalent medical condition was hypothyroidism (12.5%), which was followed by hypertension (3.6%), TB (3.6%), PCOS (3.6%), anaemia (1.8%), and asthma (1.8%). 3.6% of women were diagnosed with diabetes, while 16% of women had HbA1C levels in the prediabetic category.

Conclusion: Early detection and management of high risk factors during the preconception period can increase the likelihood of conception and improve the outcome of pregnancies.

Keywords: Preconception counselling, medical conditions, rubella vaccination, outcome.

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Introduction

Before becoming pregnant, women have always been advised to raise their level of wellbeing and abstain from dangerous substances. [1] The American Academy of Paediatrics (AAP) and American College of Obstetrics and Gynaecology (ACOG) have divided the primary components of preconception care into four categories of interventions: maternal assessment (including family history, obstetric history, medical history, behaviour, and general physical examination); vaccination (including rubella, varicella, and hepatitis B); screening (including HIV, STDs, and genetic disorders); and counselling (including for [2] Since a firm glycemic control in diabetes throughout the periconception period helps to lower the prevalence of birth defects, targeted care must be given before and early in pregnancy. [3] Among the poisons that have an early effect on pregnancy include alcohol, nicotine, and recreational drugs. It has been demonstrated that avoiding certain substances while pregnant improves the health of the baby.

Perinatal care recommendations advocate guidance on proper medical treatment and conduct to improve pregnancy outcomes during all of a woman's reproductive years, especially those that are a component of preconception care. [4]

Therefore, the current study's objectives were to ascertain the prevalence of undiagnosed medical disorders during the preconception period and to ascertain if these women need the rubella vaccine.

Subjects and Methods

Study design, settings and participants:

This hospital-based cross-sectional study was carried out from January 2020 to December 2020 in the Obstetrics and Gynaecology Department at Jehangir Hospital in Pune, India. The study population consisted of all women who visited the Gynaecology Out Patient Department at Jehangir Hospital for preconception consultation. The study did not include any women older than 40.

Following the inclusion and exclusion criteria, 56 women were ultimately included in the study.

Data collection

After obtaining informed written consent, interviews with the study participants who were present at the Department of Obstetrics and Gynecology's OPD clinic were conducted. Women were checked after providing a thorough medical history; measurements of their weight, height, and BMI were taken. A comprehensive systemic and general assessment was conducted. Patients were sent for specialist guidance and followed for any pertinent medical issues such as diabetes, hypertension, hypothyroidism, cardiovascular disorders, etc. All necessary tests, including a hemogram, a HbA1c (glycosylated haemoglobin) test, thyroid stimulating hormone levels, rubella IgG titres, a hematocrit electrophoresis, and any other tests deemed necessary based on the history obtained, were recommended.

All non-immune women were encouraged to get vaccinated against rubella. If treatment was deemed required, it was started. Counselling covered topics such as preconception nutrition, obesity, substance addiction, smoking, drinking, chewing tobacco, job dangers, X-ray exposure, and self-medication. In order to avoid teratogenicity, it was also highlighted how important it is to refrain from self-medication. Partners received smoking-related counselling. Women were urged to delay getting pregnant until the medical condition was sufficiently under control.

Statistical analysis

Data were analyzed and statistically evaluated using SPSS software, version 22 (Chicago II,

USA). Quantitative data were expressed in mean, standard deviation while qualitative data were expressed in percentage.

Ethical issues

All participants were explained about the purpose of the study. Confidentiality was assured to them along with informed written consent. The study was approved by the Institutional Ethical Committee.

Observation & results

Majority of the women were between the age of 25-29 years (44.6%) followed by 30-34 years (37.5%). Most of the women were nulliparous (69.6%). 57.6% women came after 1- 3 years of marriage. 1.8% women had history of recurrent pregnancy loss, 12.5 % women had history of at least 1 miscarriage while approximately 9 % women had history of previous ectopic pregnancy (table 1).

The most prevalent medical condition was hypothyroidism (12.5%), which was followed by hypertension (3.6%), TB (3.6%), PCOS (3.6%), anaemia (1.8%), and asthma (1.8%). Few women (figure 1) had a history of more than one known disease. 85.7% of ladies didn't need any medication change. It was shown that 50% of the women were either fat (23.2%) or overweight (26.8%). A little more than 40% of women had anaemia, but it was often mild, and 12.5% of them had hemoglobinopathy. 3.6% of women were diagnosed with diabetes, while 16% of women had HbA1C levels in the prediabetic category. 12.4% of female patients required starting or changing their thyroid medication. 85.7% of ladies didn't need any medication change. (Table 2)

Table 1: Baseline characteristics of study subjects (n=56)

| | No. | % |
|---|-----|--------|
| Age group | | |
| 20- 24 years | 2 | 3.6% |
| 25- 29 years | 25 | 44.6% |
| 30- 34 years | 21 | 37.5% |
| 35- 39 years | 7 | 12.5% |
| ≥40 years | 1 | 1.8% |
| Parity | | |
| Nullipara | 39 | 69.6% |
| Multipara | 17 | 30.4% |
| History of previous pregnancy losses | | |
| Nil | 43 | 76.8% |
| ≤2 | 7 | 12.5% |
| >3 | 1 | 1.8% |
| Ectopic pregnancy | 5 | 8.9% |
| Year since marriage | | |
| ≤ 1 year | 7 | 24.1 % |
| >1- 2 year | 8 | 27.6 % |
| >2-3 year | 9 | 31.0 % |
| >3- 4 year | 3 | 10.3% |
| > 4year | 2 | 6.9% |

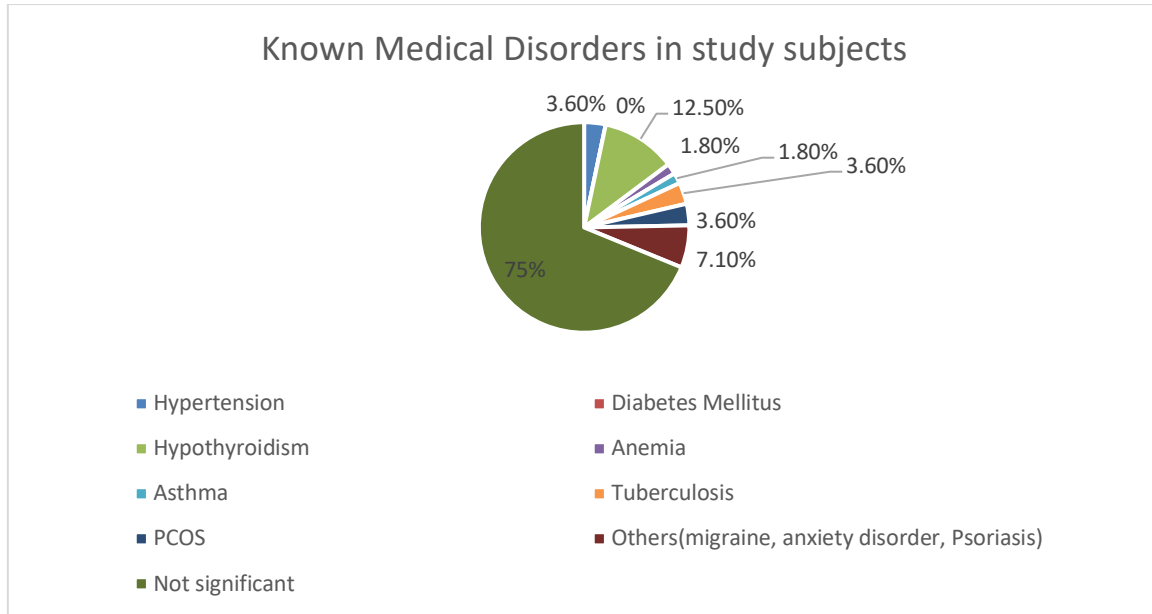


Figure 1: Known Medical Disorders in study subjects

Table 2: Abnormality seen on different investigation in study subjects (n=56)

| | No. | % |
|--|-----|--------|
| Hemoglobin level | | |
| >11.9 gm/ dl | 34 | 60.7% |
| 11- 11.9 gm/dl (mild anemia) | 14 | 25% |
| 8- 10.9 gm/dl (moderate anemia) | 7 | 12.5% |
| <8 gm/dl (severe anemia) | 1 | 1.8% |
| Hb Electrophoresis | | |
| Normal | 49 | 87.5 % |
| Thalassemia trait | 6 | 10.7 % |
| Hb S trait | 1 | 1.8 % |
| HbA1C level | | |
| Normal (4%-5.6%) | 45 | 80.4 % |
| Prediabetic (5.7%- 6.4%) | 9 | 16% |
| Diabetes (>6.5%) | 2 | 3.6% |
| Rubella serostatus | | |
| Immunity | 47 | 83.9% |
| Non immune | 9 | 16% |
| Hypothyroidism | | |
| Present (New cases) | 4 | 7.1% |
| Present (Known cases but uncontrolled) | 3 | 5.3% |
| Present (Known cases controlled) | 4 | 7.1% |
| Absent | 45 | 80.5% |
| Women requiring drug modification | | |
| Hypertension | 2 | 3.6% |
| Hypothyroidism | 3 | 5.4% |
| Migraine | 1 | 1.8% |
| Nil significant | 48 | 85.7% |

Discussion

Preconception care has received greater attention as a result of growing evidence that maternal health prior to conception can directly affect the mother's health and the environment of the foetus during pregnancy. [5] Ages 25 to 29 made up the largest percentage of women in our poll (44.6%), followed by 30 to 34 (37.5%).

Hillemeier MM et al. used a representative sample of 2002 women between the ages of 18 and 45 in their cross-sectional population-based study on women's preconceptional health and use of healthcare services, which is roughly the same age range as the women in our study. [6] When researching the age-wise distribution of preconception counselling, Dean SV proposed that

women in the reproductive age group get preconception counselling. [7]

In order to lower the risk of birth defects and guarantee that both mother and child have a healthy pregnancy and delivery, it is important to consider the rising average age at first pregnancy and the majority of women's plans to have just one child. The mother needs to be steadfastly committed to preconception planning in order to guarantee the best delivery circumstances for both herself and her child. Preconception counselling was attended by mostly nullipara women. 39 (69.6%) of the 56 women were nulliparous. Ahmed KY discovered that 79% of Sudanese women were multiparous, which is in opposition to our data.[8] Women who have previously miscarriage are more likely to request preconception counselling. One lady (1.8%), seven (12.5%) of the 56 women in our study reported having at least one miscarriage, and five (8.9%) reported having an ectopic pregnancy. Women who have lost pregnancies worry about the outcome of their future pregnancies before choosing to become pregnant again.

According to Singh G's study on bad obstetric history (history of stillbirths, neonatal deaths, three or more consecutive miscarriages, etc.), the likelihood of a recurrent miscarriage is 1%. The incidence of a subpar obstetric history was found to be 5.7% in his study. [9]

When a woman has a known medical problem, she is more likely to seek preconception care because she worries about the condition's effects on the unborn child and whether pregnancy will make it worse. 19 people (33.9%) who participated in our investigation revealed a history of previous medical issues, including psoriasis, anxiety disorder, diabetes mellitus, hypertension, hypothyroidism, PCOS, migraine, anaemia, asthma, and tuberculosis. The prevalence estimates of preconception care involvement, according to a different study by Steel A, who looked at 672 publications, varied from 18.1% to 45%, with the bulk of studies focusing on women with type 1 or type 2 diabetes. [10]

The most common past medical condition we found during our inquiry was hypothyroidism. Women with hypothyroidism made up 12.5% of the population. 2-4% of people in the reproductive age range have hypothyroidism, which has been associated to infertility and recurrent abortions. [11] Verma I et al. found a prevalence of 23.9% in a study sample of 394 infertile women. [12] Out of 56 participants in our study, 2 patients (3.57%) revealed a history of hypertension. In a study conducted in the United States by Bateman BT et al., the estimated prevalence of hypertension among women in the reproductive age range was found to be 7.7%, which is higher than the findings

of our study. [13] Both women with hypertension were on ACE inhibitors. These drugs have been related in children to renal dysplasia, renal failure, neural tube abnormalities, and congenital heart disease. [14]

In the course of our HbA1C examination, we identified 2 women (3.57%) with diabetes and 9 women (16%) with prediabetes. The HbA1C values of the remaining 45 women (80.4%) were within normal range. Ramaiya KL found that the prevalence of NIDDM in the Indian subcontinent was 5% in his study on the condition in migrant Indians, which is compatible with the findings of our investigations. [15]

In a Tamil Nadu tribal tribe, Murugan et al. found that the prevalence of diabetes was 1.6%, which is less than what we found. [16] The article by Tabak AG claims that prediabetes, commonly referred to as "intermediate hyperglycemia," is a condition with a high chance of turning into diabetes and has an annualised conversion rate of 5%–10%. It is based on glycemic indices that are higher than average but do not meet the requirements for diabetes. The cornerstone of prediabetic individuals' diabetes prevention is lifestyle adjustment, which has been shown to reduce relative risk by 40%–70%. [17]

Conclusion

Preconception therapy presents a window of opportunity for health promotion at this time since women are very motivated to improve their bad lifestyles. The likelihood of conception can be increased and the outcome of pregnancies can be improved by early identification and management of high risk variables during the preconception period. Teratogenic pharmaceutical use can be identified and replaced with safe alternatives to lessen anxiety and improve outcomes. Women who are not receiving enough medical treatment for their diseases can be found and swiftly corrected.

References:

1. Plutarch: Lycurgus (trans. Johny Dryden). New York: Random House; 1932:59- 60.
2. Gilstrap L, Oh W. American Academy of Pediatrics and the American College of Obstetricians and Gynecologists. Guidelines for perinatal care. (5th ed.) Washington, DC; 2002.
3. American Diabetes Association. Preconception care of women with diabetes. *Diabetes Care*. 2004; 27(1):76-8.
4. Johnson K, Posner SF, Biermann J, Cordero JF, Atrash HK, Parker CS et al. Recommendations to improve Preconception Health and Health Care- United States: A report of the CDC/ATSDR. Preconception care work group and select panel on Preconception

- Care. MMWR Recomm Rep. 2006 Apr 21; 55(RR-6):1-23.
5. American College of Obstetricians and Gynecologists. ACOG Committee Opinion number 313, September 2005. The importance of preconception care in the continuum of women's health care. *Obstet Gynecol.* 2005 Sep; 106(3):665-6.
 6. Hillemeier MM, Weisman CS, Chase GA, Dyer AM, Shaffer ML. Women's Preconceptional Health and Use of Health Services: Implications for Preconception Care. *Health Serv Res.* 2008; 43 (1):54-75.
 7. Dean SV, Imam AM, Lassi ZS, Zulficar AB. Systemic Review of Preconception Risks and Interventions. Pakistan: Division of Women and Child Health Agha Khan University; 2013:77- 85.
 8. Ahmed KY, Elbashir IM, Mohamed SM, Saeed AK, Alawad AA. Knowledge, Attitude and Practice of Preconception Care Among Sudanese Women in Reproductive Age About Rheumatic Heart Disease. *Int J Public Health Res.* 2015; 3(5):223- 27.
 9. Singh G, Sindhu K. Bad Obstetric History: A Prospective Study. *Med J Armed Forces India.* 2010; 66(2):117-20.
 10. Steel A, Lucke J, Adams J. The prevalence and nature of the use of preconception services by women with chronic health conditions: an integrative review. *BMC Womens Health.* 2015; 15:14.
 11. Lincoln SR, Ke RW, Kutteh WH. Screening of hypothyroidism in infertile women. *J Reprod Med.* 1999; 44 (5):455-57.
 12. Verma I, Sood R, Juneja S, Kaur S. Prevalence of hypothyroidism in infertile women and evaluation of response of treatment for hypothyroidism on infertility. *Int J Appl Basic Med Res.* 2012; 2 (1):17- 19.
 13. Bateman BT, Shaw KM, Kuklina EV, Callaghan WM, Seely EW, Hernandez-Diaz S. Hypertension in women of reproductive age in the United States: NHANES 1999–2008. *PLoS One.* 2012; 7(4):e36171.
 14. Li DK, Yang C, Andrade S, Tavares V, Ferber JR. Maternal exposure to angiotensin converting enzyme inhibitors in the first trimester and risk of malformations in offspring: a retrospective cohort study. *BMJ.* 2011; 343:d5931.
 15. Ramaiya KL, Kodali VR, Alberti KG. Epidemiology of diabetes in Asians of the Indian subcontinent. *Diabetes Metab Rev* 1990; 6 (3): 125-46.
 16. Murugan A, Beula A. Epidemiological Studies on Type- 2 Diabetes Mellitus in Kaani Tribes of Kanyakumari District, Tamil Nadu, India. *Int J Res Rev Pharm Appl Sci.* 2012; 2:651-61.
 17. Tabák AG, Herder C, Rathmann W, Brunner EJ, Kivimäki M. Prediabetes: A high-risk state for developing diabetes. *Lancet.* 2012; 379 (9833):2279- 90.