Research Article

Infertile Couple and Pregnancy Outcomes for Patients Undergoing a Pregnancy Program in the Rural Area of Nagekeo District, Flores, East Nusa Tenggara

Pasangan Infertil dan Luaran Kehamilan pada Pasien yang Menjalani Program Kehamilan di Kabupaten Nagekeo, Flores, Nusa Tenggara Timur

Chatarina L. S. D. Dando[1], Angga Dominius[1], Jacob T. Salean[2]

[1]General Practitioners
[2]Department of Obstetrics and Gynecology
Aeramo Hospital Flores Nagekeo Regency

Abstract

Objective: To elucidate the characteristics of infertile couples residing in the rural area of Nagekeo Regency and assess the outcomes of their participation in the local pregnancy program.

Methods: We conducted a descriptive study at Aeramo Regional General Hospital (RGH) in Nagekeo Regency, Flores, East Nusa Tenggara (ENT), utilizing a total sampling technique from January 2020 to April 2022. A total of 56 couples participated in this study.

Results: The analysis revealed that infertile couples at Aeramo RGH were typically aged between 23 and 35 years, with an average infertility duration exceeding 4 years. Primary infertility was the predominant condition (89.3%), with 55.4% of male partners exhibiting obesity. A significant number of male participants reported alcohol and cigarette consumption. Data were insufficient to determine the prevalence of infertility in men versus women. Notably, the outcomes of the pregnancy program in this region did not demonstrate significant improvements.

Conclusions: This study identified potential risk factors such as smoking, alcohol consumption, and obesity that may contribute to infertility; however, it did not establish a strong correlation between these factors and infertility. Moreover, the pregnancy program's outcomes were inconclusive, likely due to limited diagnostic and treatment resources in the area.

Keyword: infertility characteristics, pregnancy program, pregnancy outcomes.

Abstrak

Tujuan: Mendeskripsikan karakteristik pasangan infertil di Kabupaten Nagekeo serta mengetahui hasil luaran kehamilan bagi pasangan yang mengikuti program kehamilan di daerah tersebut.

Metode: Penelitian ini merupakan penelitian deskriptif yang dilakukan di Rumah Sakit Umum Daerah (RSUD) Aeramo, Kabupaten Nagekeo, Flores, Nusa Tenggara Timur. Dengan menggunakan teknik total sampling pada periode Januari 2020 - April 2022, terdapat 56 pasangan yang bergabung dalam penelitian ini.

Hasil: Hasil penelitian kemudian dianalisis secara univariat dan didapatkan usia pasangan infertil di Aeramo RGH adalah antara 23 - 35 tahun dengan durasi infertilitas lebih dari 4 tahun. Infertilitas primer dan obesitas pada pria mendominasi masing-masing kelompok yaitu 89,3% dan 55,4%. Mayoritas laki-laki mengonsumsi alkohol dan rokok. Tidak ditemukan data yang cukup untuk menentukan apakah infertilitas terjadi pada laki-laki atau perempuan. Hasil dari program kehamilan yang dilakukan di daerah ini belum menunjukkan hasil yang signifikan.

Kesimpulan: Karakteristik yang memicu faktor risiko seperti merokok, mengonsumsi alkohol dan obesitas. Meskipun pada penelitian ini belum didapatkan korelasi yang kuat dari faktor risiko tersebut pada infertilitas. Hasil dari program kehamilan belum menunjukkan hasil yang signifikan karena modalitas diagnostik dan pengobatan yang sangat terbatas.

Kata kunci: karakteristik infertilitas, luaran kehamilan, program hamil.

INTRODUCTION

Infertility is defined as the inability to conceive after unprotected sexual intercourse for 12 months or more. It is categorized as either primary or secondary infertility. Approximately 48 million couples worldwide experience infertility.[1]

Data from the Indonesian In Vitro Fertilization Association (PERFITRI) in 2017 found that infertility occurred in 1,712 men and 2,055 women. Currently, over 20% of couples grapple with infertility issues.[2]

For many couples, the period of infertility treatment is the most stressful of their lives. In developing countries, the desire to reproduce can be met with societal stigmatization, leading to diminished self-esteem and depression. Furthermore, the pursuit of parenthood often results in a decreased desire for sexual activity when conception remains elusive.[3]

A higher infertility rate in a country can contribute to a reduced birth rate, potentially resulting in a less productive workforce, increased dependency on labor, and a growing elderly population.[4]

Risk factors for infertility are often linked to an individual's lifestyle. In men, infertility can stem from issues related to sperm quality, while in women, structural or hormonal abnormalities may be the cause.[1]

Hence, it is crucial to assess and research infertility. This study aims to present data regarding the characteristics of infertile couples and the outcomes of pregnancy programs in Nagekeo Regency, Flores, East Nusa Tenggara (NTT). The objective is to provide a reference for the local Health Office and the Ministry of Health of the Republic of Indonesia, facilitating the development of appropriate infertility management strategies in rural areas.

METHODS

This research comprises a descriptive study conducted at the Regional General Hospital (RSUD) Aeramo in Nagekeo Regency. The data were collected from both primary and secondary sources. Primary data were gathered through direct interviews, employing questionnaires administered to respondents, while secondary data were extracted from medical records at Aeramo Hospital.

The study population consisted of infertile couples who had participated in a pregnancy program at the Gynecology Clinic of Aeramo Hospital. Utilizing a total sampling technique from January 2020 to April 2022, a total of 56 couples were included in the study.

The collected data were subsequently subjected to univariate analysis using SPSS Version 25. This analysis aimed to provide a descriptive overview of the characteristics and pregnancy outcomes associated with the conducted pregnancy program. The results of this study have been presented in tabulated form, aligning with relevant theories.

RESULTS

The results of the analysis of respondent characteristics are presented below.

Table 1. Respondent Characteristics

Variables	n = 56
Age of Female	
25 – 30	23 (41.1)
31 – 35	17 (30.4)
36 – 40	15 (26.8)
41 – 45	1 (1.8)
46 – 50	0
Age of Male	
25 – 30	9 (16.1)
31 – 35	23 (41.1)
36 – 40	16 (28.6)
41 – 45	7 (12.5)
46 – 50	1 (1.8)
Types of Infertility	
Primary	50 (89.3)
Secondary	6 (107)
Duration of Infertility (year)	
1	9 (16.1)
2	10 (17.9)
3	9 (16.1)
4	5 (8.9)
>4	23 (41)
Female Body Mass Index (BMI)	
Obesity	26 (46.4)
Non Obese	30 (53.6)
Male	
Obesity	31 (55.4)
Non Obese	25 (44.6)
Smoking History	
Female	
Yes	0 (0)
No	56 (100)
Male	
Yes	33 (58.9)
No	23 (41.1)
Alcohol History	
Female	
Yes	0 (0)

No	56 (100)
Male	
Yes	35(62.5)
No	21 (37.5)
Sperm Analysis	
Normospermia	12 (21.4)
Asthenozoospermia	9 (16)
Oligoasthenozoospermia	3 (5.4)
Leucospermia	
Normospermia	3 (5.4)
Oligozoopermia	3 (5.4)
Teratozoospermia	2 (3.6)
Asthenoteratozoospermia	1 (1.8)
No Laboratory Result	23 (41)
Female's Comorbidities	
PCOS	6 (10.71)
Ovarian Cyst	3 (5.4)
Uterine Myoma	3 (5.4)
not specific etiology	3 (5.4)
Endometriosis	2 (3.6)
Unknown	39 (69.6)

Table 2. Pregnancy Outcomes

Result	n = 56
Pregnant	12 (21.4)
Not Pregnant	44 (78.5)

DISCUSSIONS

The highest prevalence of infertility was observed in women aged 25-30 years (41.1%) and in men aged 31-35 years (41.1%). Previous studies have consistently demonstrated that the risk of infertility tends to rise with age.[5]

Based on Borumandnia's research, the prevalence of primary infertility in men and women in the Southeast Asian region is lower when compared to secondary infertility.[6] These results are not in accordance with this study, because the primary infertility rate is higher than secondary infertility.

The duration of infertility in married couples is predominantly greater than 4 years (41%). This finding aligns with prior research, which has shown that as the duration of infertility increases, the degree of infertility also tends to rise, often resulting in a smaller number of oocytes obtained.[5]

Obesity is one of the characteristics of infertile couples. In this study, obesity in men (55,4%) was higher than in women (46.4%). Obesity can trigger infertility in men through changes in semen parameters such as sperm concentration, motility, viability, morphology, DNA integrity and mitochondrial function.[7] Obesity and overweight

in women can trigger menstrual dysfunction and anovulatory conditions.[8]

In this study, 58.9% of male respondents were active smokers, while none of the women smoked. Active smoking has been associated with an increased incidence of infertility. Moreover, the delay in conception appears to be directly correlated with the number of cigarettes smoked daily, with active smokers experiencing a 54% higher delay in achieving conception. Among women, smoking can accelerate ovarian follicular depletion and the loss of reproductive function. In men, smoking often leads to reduced sperm concentration, motility, and/or morphology when compared to non-smokers.[9]

Alcohol consumption is associated with sperm apoptosis and spermatogenesis defects that cause low total sperm count and concentration. More than a third of men who consume >5 units of alcohol per week experience partial or total spermatogenic arrest.[10] The results of this study showed that 62.5% of men (35 people) actively consumed alcohol, while no women consumed alcohol.

The causes of infertility in women include ovulation disorders, reduced ovarian reserves, abnormalities in the reproductive system or chronic diseases.[11] In this study, 69.6% of women who experienced infertility had unknown causes, PCOS (Polycistic ovary syndrome) as much as 10.71%, ovarian cysts (5.4%), uterine myoma (5.4%), secondary amenorrhea (5.4%), and endometriosis (3.6%). PCOS puts women 10 times at risk of infertility.[12] Among the male respondents, a total of 21 individuals (37.5%) exhibited sperm abnormalities. The most prevalent sperm abnormality observed was asthenozoospermia (16%). Notably, 90% of male infertility cases are attributed to abnormalities in sperm count parameters [Reference 5]. However, it's important to acknowledge the limitations of this research, as 41% of male respondents did not undergo sperm analysis.

In this study, the outcome of the pregnancy program indicated a success rate of 21.4%, with 12 women successfully conceiving within one cycle of the three-month pregnancy program. The program utilized conventional methods, consisting of a natural pregnancy program involving the analysis of infertility causes using available diagnostic modalities, namely Ultrasonography (USG) and sperm analysis examinations. When suspicions of reproductive diseases were identified in women and men,

management was provided, including education to modify risk factors and medication tailored to the underlying causes. However, it's important to note that this study did not assess the significance of the pregnancy program at Aeramo Hospital in relation to pregnancy success. The relationship between the management provided and pregnancy outcomes was not analyzed.

CONCLUSION

The majority of infertility cases were observed in women aged 25-30 years (41.1%) and in men aged 31-35 years (41.1%). Primary infertility was the most prevalent type (89.3%). The duration of infertility exceeded 4 years in 41% of cases. A significant proportion of men were obese, with a prevalence of 55.4%, while 46.4% of women were obese. Additionally, the majority of men in the study were smokers (58.9%) and consumed alcohol (62.5%). It is essential to acknowledge data limitations, particularly regarding the results of male sperm analysis and female comorbidities. In terms of pregnancy outcomes, only 21.43% of participants achieved pregnancy, while 78.57% did not. This study did not identify a strong correlation between these risk factors and infertility. Furthermore, the pregnancy outcomes of couples undergoing the pregnancy program at Aeramo Hospital did not yield significant results, primarily due to the limited availability of diagnostic and management modalities.

SUGGESTION

It is necessary to conduct bivariate to multivariate analytical research on each of these infertility risk factors for the incidence of infertility in rural areas of Nagekeo Regency,to provide valuable data on causal relationships, which, in turn, can inform future infertility prevention measures.

REFERENCES

1. World Health Organization. Infertility. 2020 https://www.who.int/news-room/ fact-sheets/detail/infertility
2. Mulyani U, Sukarni D, Sari EP. Faktor-Faktor yang Berhubungan Dengan Infertilitas Priemer Pada Pasangan Usia Subur Di Wilayah Kerja UPTD Puskesmas Lembak KAB. Muara Enim Tahun 2021 [Internet]. NUSANTARA: Jur Ilmu Pengetahuan Sos. 2021:2698–710. http://jurnal.um-tapsel.ac.id/index.php/nusantara/article/view/5802/3220
3. Starc A, Trampuš M, Pavan Jukić D, Rotim C, Jukić T, Polona Mivšek A. Infertility and Sexual Dysfunctions: A Systematic Literature Review. Acta Clin Croat.2019;58(3):508–15. /pmc/articles/PMC6971809/
4. Nargund G. Declining birth rate in Developed Countries: A radical policy re-think is required. Facts, Views Vis Obtet Gynecol. 2009 ;1(3):191–3. /pmc/articles/PMC4255510/
5. Adnyana IBP, Artha IBRK, Tanjung A, Rahman L. Karakteristik Faktor Penyebab Infertilitas pada Pasien yang Menjalani In-Vitro Fertilization (IVF). Indones J Obstet Gynecol Sci. 2021;4(1):49–55.
6. Borumandnia N, Majd HA, Khadembashi N, Alaii H. Worldwide trend analysis of primary and secondary infertility rates over past decades: A cross-sectional study. Int J Reprod Biomed . 2022;20(1):37–46. https://pubmed.ncbi.nlm.nih. gov/35308328/
7. Leisegang K, Sengupta P, Agarwal A, Henkel R. Obesity and male infertility: Mechanisms and management. Andrologia. 2020 ;53(1). https://pubmed.ncbi.nlm.nih.gov/32399992/
8. Dağ ZÖ, Dilbaz B. Impact of obesity on infertility in women. J Turk Ger Gynecol Assoc. 2015;16(2):111–7. https://pubmed.ncbi.nlm.nih.gov/26097395/
9. Penzias A, Bendikson K, Butts S, Coutifaris C, Falcone T, Gitlin S, et al. Smoking and infertility: a committee opinion. Fertil Steril. 2018;110(4):611–8. https://pubmed.ncbi.nlm.nih. gov/30196946/
10. Bai S, Wan Y, Zong L, Li W, Xu X, Zhao Y, et al. Association of Alcohol Intake and Semen Parameters in Men with Primary and Secondary Infertility: A Cross-Sectional Study. Front Physiol . 2020;11:1–9. /pmc/articles/PMC7517893/
11. Skoracka K, Ratajczak AE, Rychter AM, Dobrowolska A, Krela-Kaźmierczak I. Female Fertility and the Nutritional Approach: The Most Essential Aspects. Adv Nutr. 2021;12(6):2372–86. https://pubmed.ncbi.nlm.nih.gov/34139003/
12. Hanson B, Johnstone E, Dorais J, Silver B, Peterson CM, Hotaling J. Female infertility, infertility-associated diagnoses, and comorbidities: a review. J Assist Reprod Genet. 2017;34(2):167–77. https://pubmed.ncbi. nlm.nih.gov/27817040/