

## MANAGEMENT OF GESTATIONAL HYPERTENSION THROUGH FAMILY MEDICINE APPROACH: CASE REPORT

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### ABSTRAK

Beberapa faktor berkontribusi terhadap kejadian hipertensi dalam kehamilan, termasuk riwayat hipertensi dalam keluarga, obesitas, dan kebiasaan makan yang tidak sehat. Kebiasaan keluarga dapat berdampak besar pada gaya hidup, terutama pilihan nutrisi. Laporan ini menyajikan kasus hipertensi gestasional pada Ny. DK, seorang wanita hamil berusia 20 tahun dengan obesitas, yang ditangani dengan menggunakan pendekatan kedokteran keluarga. Penyebab masalah yang teridentifikasi adalah adanya faktor genetik terhadap hipertensi, yang diperburuk oleh kebiasaan makan yang tidak sehat dalam keluarga. Ny. DK dan keluarganya diberikan intervensi komprehensif untuk memastikan kehamilan yang sehat. Strategi ini memberinya hasil dalam bentuk tekanan darah yang terkontrol dan pemahaman yang lebih baik tentang kondisi dan kebutuhan nutrisinya, serta strategi untuk memenuhinya. Pengawasan berkelanjutan diperlukan untuk memastikan Ny. DK menjalani kehamilan yang sehat.

### ABSTRACT

**Management Of Gestational Hypertension Through Family Medicine Approach: Case Report.** Several factors contribute to the incidence of hypertension during pregnancy, including a familial history of hypertension, obesity, and unhealthy dietary habits. Family habits can have a substantial impact on lifestyle, especially nutritional choices. This report presents a case of gestational hypertension in Mrs. DK, a 20-year-old pregnant woman with obesity, who was managed utilizing a family medicine approach. The identified root cause of her problem as an inherited genetic susceptibility to hypertension, exacerbated by poor dietary habit within the family. Mrs. DK and her family was given comprehensive intervention to ensure a healthy pregnancy. This strategy provided her with results in the form of controlled blood pressure and enhanced understanding of her condition and nutritional requirements, as well as strategies to fulfill them. Ongoing surveillance is necessary to guarantee that goals are being met.

## INTRODUCTION

Hypertension in pregnancy is a prominent contributor to maternal and neonatal death rates on a global scale.<sup>1-3</sup> Hypertensive disorders of pregnancy, particularly preeclampsia, are significant issues within the field of public health and perinatal medicine that contributes to increasing maternal mortality.<sup>1</sup> According to the World Health Organization (WHO), one to two maternal death occurs in every two minutes.<sup>4</sup> Among Southeast Asian countries, Indonesia remains to struggle with a high maternal mortality rates (MMR) among. In 2021, the maternal mortality rate in Indonesia reached 7,389 fatalities. This figure indicated a rise of 4,627 fatalities in comparison to 2020. Among this number, 1,077 maternal fatalities were caused by hypertension during pregnancy.<sup>5</sup> The three major causes of maternal mortality in Indonesia are post-partum hemorrhage, infection and hypertensive disorders.<sup>6</sup> The distribution of the three causes of maternal mortality has shifted, with a drop in the occurrence of hemorrhage and infection, and an increase in the proportion of hypertensive disorders of pregnancy.<sup>7,8</sup> The incidence rate in Indonesia is around 3.8-8.5%. In Indonesia, preeclampsia is a high cause of maternal death by 24%.<sup>8</sup> Preeclampsia and eclampsia are the most significant hypertension disorders in terms of their influence on the health and survival of both mothers and newborns. Furthermore, hypertension not only increases the likelihood of death but also poses a risk for stillbirth, early birth, and intrauterine growth restriction (IUGR).<sup>7,8</sup> Nevertheless, the majority of fatalities associated with hypertension can be prevented if women receive prompt medical attention.<sup>1</sup>

Several factors contribute to the occurrence of hypertension in pregnancy, including advanced maternal age, familial history of hypertension, past history of hypertension during pregnancies, and the existence of metabolic disorders like as obesity and dyslipidemia.<sup>9,10</sup> Family habits also plays a significant role in influencing lifestyle, encompassing physical activity, dietary habits, and food choices. Personal well-being is influenced by the family environment, which shapes habits, lifestyles, values, norms, attitudes, and behaviors related to health. However, many family members do not realize that family habits have a significant impact on a healthy pregnancy.<sup>11</sup> This highlights the necessity of adopting a family-oriented approach when dealing with hypertension. We hereby report a case of gestational hypertension in a 20-year-old primigravida with obesity was treated using a family medicine approach.

## CASE REPORT

Mrs. DK, 20 years old, G1P0000, 25 weeks pregnant, visited Sindang Jaya Health Center with a complaint of sporadic dizziness which subsides with rest. Prior to this occurrence, Mrs. DK had never had dizziness without the presence of symptoms such as nausea, vomiting, weakness, and blurred vision. She denied experiencing any other problems such as tinnitus and fever. Throughout the pregnancy, the patient underwent antenatal care (ANC) on a regular basis. This included two visits to the midwife, one visit to the community health post, and one visit to the community health center. Gestational hypertension was diagnosed 3 days prior to her current visit. She was prescribed

with antihypertensive medication, taken once daily at night time, as well as iron supplements taken once daily in the morning. The patient also complained of muscle cramps and back pain throughout her pregnancy.

Mrs. DK's family history reveals a hereditary predisposition to hypertension, as both the patient's grandmother and father have a documented history of the condition. Furthermore, the patient's partner is also diagnosed with hypertension. Furthermore, the patient's grandmother has a medical background of diabetes mellitus, in addition to hypertension. The patient's mother is equally as obese.

Mrs. DK eats regularly 2-3 times every day. Throughout her pregnancy, Mrs. DK frequently consume snacks consisting of fruit or specially formulated milk designed for pregnant women. Mrs. DK's meal consists of rice, eggs, tofu, tempeh, and veggies. Mrs. DK adheres to a consistent eating schedule, starting with breakfast at 07:00 WIB, followed by lunch around 12:00 WIB, and then another meal around 18:00 WIB. Based on a dietary recall, Mrs. DK consumes a high sodium diet from a significant usage of food flavor additives such as MSG.

Mrs. DK presently resides in a household comprising of 7 individuals, specifically the patient's father, mother, spouse, and 4 younger siblings. (Figure 1) The patient's family income sources are from her father and spouse; the amount surpasses the minimum wage for Tangerang Regency. Consequently, the income is sufficient to fulfill the family's essential daily requirements. Mrs. DK and her family typically rely on over-the-counter medications for their illness. If these remedies fail to provide relief, they visit the Sindang Jaya Community Health Center. Mrs. DK's family is registered on Indonesia's Social Security Administrator for Health for free health insurance. However, due to government regulations regarding a maximum of 5 individual coverage per household, Mrs. DK and her fourth sibling are not registered. Therefore, at present, she does not have a health insurance.

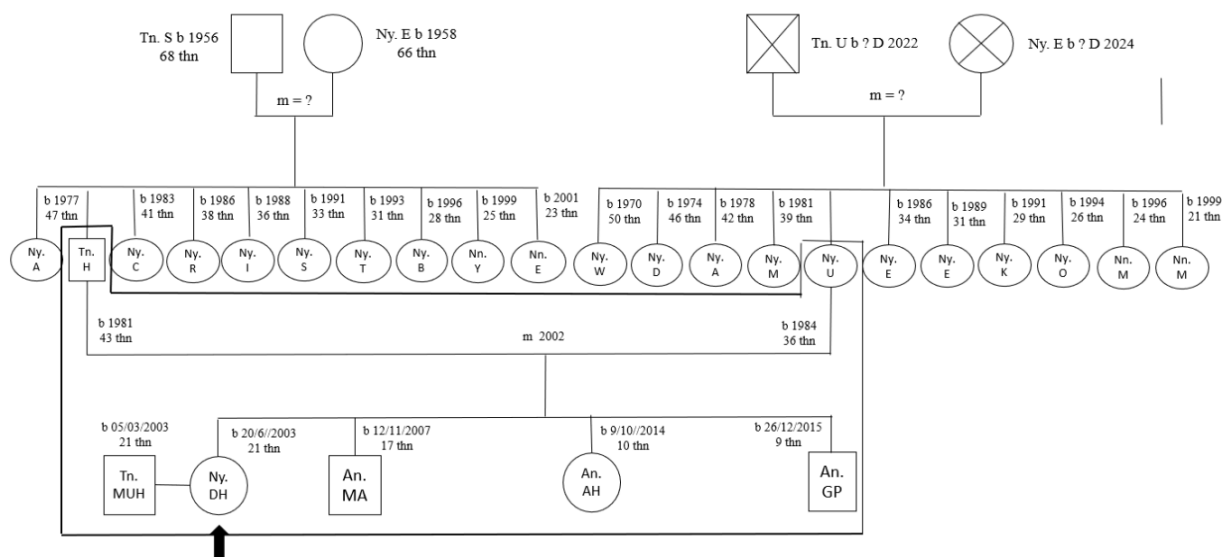


Figure 1. Genogram of Mrs. DK's family

During initial home visit, Mrs. DK's residence encompasses a land area of 160 square meters, with a building space of 100 square meters. The property is now occupied by a total of 7 individuals. Mrs. DK's family's house is situated at Waru District, which is roughly 1 km away from the Sindang Jaya Health Center. The house has a one living room, two bedrooms, a kitchen, a laundry, and a bathroom. Mrs. DK's house is properly ventilated, with walls constructed from cemented bricks and also properly painted. The house has a roof composed of asbestos panels supported by a timber framework. House lighting comes from both natural and electrical sources. Mrs. DK's residence is equipped with potable water, a proper sewage and waste disposal system. Overall, the housing is considered as healthy and adequate.

During the physical examination, it was observed that the patient had grade II obesity, with a body weight of 78 kg, body height of 150 cm, a body mass index (BMI) of 34.6 kg/m<sup>2</sup>, and arm circumference of 36 cm. The patient also had a blood pressure reading of 141/92 mmHg, all other vital signs were within normal range. Systemic examination revealed no abnormalities. During the obstetric examination, uterine fundus was measured 28 cm, with active fetal movements and cephalic fetal presentation. Urinalysis was done and did not reveal proteinuria. An assessment of family function reveals positive biological, psychological, and economic aspects. The family's coping score prior to the intervention was evaluated as 4, indicating awareness of the problem and potential solutions, some of which have been implemented, but further support is still required.

The established holistic diagnosis are: aspect I (personal) encompasses symptoms of dizziness, cramps in both hands, and back pain; aspect II (clinical aspect) involves a preliminary diagnosis of G1P0000 UK 25 weeks with gestational hypertension, along with additional diagnoses of myalgia and muscle spasm; aspect III (internal aspect) includes Mrs. DK's unawareness of her condition, lack of prior knowledge of gestational hypertension, unhealthy habit of consuming high-sodium foods, and a genetic predisposition to hypertension and obesity; aspect IV (external aspect) include Mrs. DK's family unawareness of. Her condition, lack of knowledge regarding gestational hypertension and its potential complications, and unhealthy family habits which causes her spouse and family members to also suffer from obesity and hypertension; in regard of aspect V (functional aspect), Mrs. DK is able to perform daily tasks without any limitation.

Based on this holistic diagnosis, the patient is provided with holistic and thorough care. Pharmacologically, the patient received a daily dose of nifedipine 10 mg at bedtime, and a daily dose of ferrous sulphate in the morning. Mrs. DK and her family was educated about obesity and gestational hypertension, including the definition, causes, risk factors, signs and symptoms, treatment, prevention, and related complications. Mrs. DK and her family were also provided with instruction regarding the significance of modifying their diet and food choices, also engaging in physical activity to address the issues of obesity and gestational hypertension encountered by Mrs. DK and her family members. The family was advised to enroll Mrs. DK in the Social Health Insurance program and encourage her and her family to consistently seek medical treatment at the nearest healthcare center, particularly to check her blood pressure and fetal well-being. These were done to enhance the family's understanding and involvement, ensuring adequate dietary needs throughout the patient's pregnancy whilst also obtain a satisfactory nutritional status.

In a span of one month, a total of six home visits were made to monitor the blood pressure, offer re-education, and assess the dietary composition of Mrs. DK and her family. During the period observation, Mrs. DK and her family focused on preparing meals that are both nutritionally balanced and low in sodium. Furthermore, a gradual decrease in Mrs. DK's blood pressure was seen over the course of the visits, with measurements of 130/89 mmHg at the first visit, 125/75 mmHg at the second visit, 134/84 mmHg at the third visit, 138/81 mmHg at the fourth visit, 120/78 mmHg at the fifth visit, and 122/69 mmHg at the sixth visit. Mrs. DK and her family were encouraged to consistently engage in this lifestyle in order to maintain control over her blood pressure until delivery and to prevent any complications that might arise from her underlying condition, mainly hypertension and obesity.

## DISCUSSION

Family medicine practice prioritizes the individual's well-being rather than solely focusing on the disease. Family practice, as defined by the World Organization of Family Doctors (WONCA), is a healthcare service delivered by a family physician which provide comprehensive, continuous, coordinated, collaborative, personal, family, and community-oriented medical care, with a particular focus on the family unit.<sup>12</sup>

The family medicine approach is closely associated with the Mandala of Health (MoH), which considers the health of an individual (body, mind, spirit) to be influenced by four primary factors. These factors include biological factors, such as genetic predisposition, immune system function, and biochemical capabilities. Additionally, psychological and anatomical conditions of both the individual and their family play a role. Personal habits, such as family eating habits, also contribute to health. Furthermore, psychosocial environmental factors, such as socioeconomic status, stress levels in school and work, and social support systems, have an impact. Lastly, physical environmental factors, including the condition of the home, workplace, and surrounding environment, as well as existing cultural values, are influential.<sup>13,14</sup> Diseases emerge as a result of the impact of these four variables. Upon evaluation, obesity, poor nutritional status, poor personal dietary habits, lack of education, and poor dietary habits in the family are contributing factors to the development of gestational hypertension in Mrs. DK. She is also at an increased risk of developing gestational hypertension due to a family history of hypertension.

Uncontrolled gestational hypertension poses a significant risk for complications such as pre-eclampsia and eclampsia. Both of these disorders are the primary leading causes of maternal mortality. Hence, it is crucial to manage and regulate blood pressure in pregnant women who have been diagnosed with gestational hypertension in order to prevent related morbidity and mortality.<sup>15</sup> The factors associated with the occurrence of hypertension in pregnancy were advanced maternal age (odds ratio [OR] 2.048, 95% confidence interval [CI] 1.121-3.208), BMI  $\geq$  24 kg/m<sup>2</sup> (OR 1.463, 95% CI 1.069-2.011), family history of hypertension (OR 2.129, 95% CI 1.093-3.042), history of adverse pregnancy (OR 2.435, 95% CI 1.264-4.085), history of contraceptive pill use (OR 3.806, 95% CI 1.184-6.102), family history of hypertensive disorders complicating

pregnancy (OR 1.934, 95% CI 1.093-3.042), and history of PCOS (OR 1.016-2.774). Genetic predisposition significantly influenced the development of gestational hypertension in the patient in our case.<sup>9</sup>

The incidence of hypertension in overweight pregnant women (62.19%) exceeds that in pregnant women with normal nutritional status (37.81%). This study demonstrates that overweight pregnant women had a 2.37-fold higher likelihood of developing hypertension during pregnancy compared to pregnant women with adequate nutritional status and hypertension. A positive correlation between the body mass index of pregnant women and the likelihood of developing pregnancy hypertension has been reported numerously.<sup>10</sup> This underlies our active intervention for Mrs. DK to address her condition.

Individual health is influenced by family health status, since it is defined by the healthy or pathogenic practices adopted by the family unit.<sup>16</sup> A family that adopts a healthy lifestyle fosters the well-being of its members, while an unhealthy family lifestyle can lead to illness among family members. The relationship between individual and family health is regarded to be mutually influential, meaning that both sides have an impact on each other. Personal well-being is influenced by the family environment, which shapes habits, lifestyles, values, norms, attitudes, and behavior related to health.<sup>17</sup> Family dysfunction increases the likelihood of experiencing certain health issues, including: a low level of physical activity (OR 1.61; 95% CI = 1.03-2.52); tobacco consumption (OR 1.63; CI95% = 1.04-2.55); overweight-obesity (OR 1.77; CI95% = 1.13-2.76); altered blood pressure (OR 2.00; CI95% = 1.22-3.28), and risky consumption of alcohol (OR 5.69; CI95% = 3.59-9.01). Family dysfunction is a risk factor for overweight and obesity in individuals, as it can lead to the development of unhealthy eating habits. Women are disproportionately affected by this phenomenon compared to men.<sup>11</sup>

To effectively manage Mrs. DK's condition, it is crucial to address the existing risks by enhancing her dietary habits. The role of the family is crucial to the improvement of eating habits. Health promotion techniques aimed at enhancing family empowerment in the prevention of malnutrition involve the provision of information, health education, and communication to promote behavioral change.<sup>18,19</sup> Education is being provided to Mrs. DK and her family members in order to address the underlying issue in the family.

Despite the improvement in Mrs. DK's blood pressure, ongoing surveillance remains necessary. Continuous surveillance and assistance are necessary for Mrs DK and her family to maintain lifestyle modifications, enhance knowledge and provide social support. Monitoring can be conducted through house visits and discussion group sessions.<sup>20</sup> A team of healthcare personnels overseeing Mrs. DK's case has conducted this procedure and will continue to do so in order to guarantee that her blood pressure is adequately controlled. This is crucial for Mrs. DK to have a complication-free pregnancy until delivery.

## CONCLUSION

The diagnosis and treatment of Mrs. DK have been conducted following the principles of family medicine. The management has achieved positive outcomes for Mrs. DK, including effective blood pressure control and enhanced understanding of her condition and nutritional requirements among Mrs. DK and her family members. Continuous monitoring is necessary to achieve optimal blood pressure control for Mrs. DK and to ensure a complication-free pregnancy and delivery.

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