

Characteristics of Pregnant Women with Thyroid Disorders at Wahidin Sudirohusodo Hospital Makassar

Características de las mujeres embarazadas con trastornos de la tiroides en el Hospital Wahidin Sudirohusodo de Makassar

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SUMMARY

Backgrounds: At least 2 %-3 % of pregnant women experience thyroid dysfunction, which affects the health of the mother and baby. There is still little research on pregnant women with thyroid disorders.

Aim: Investigating the characteristics of pregnant women with thyroid disorders in Dr. Wahidin Sudirohusodo Hospital Makassar.

Methods: A descriptive retrospective study based on medical record data for 2019-2020. **Results:** There were 15 of 399 pregnant women (3.76 %) who had thyroid disorders; most of them were hyperthyroid (60 %) without any previous thyroid history (73.3 %).

They were aged 20-35 years (86.7 %), Bugis ethnicity (46.7 %), multiparous (60 %), had previous delivery history by cesarean section (56.7 %) and had a normal BMI (73.3 %). Thyroid complaints first appeared in the third trimester (66.7 %) with a high level of FT4 (46.7 %) and normal TSH (60.0 %). The current delivery method was Sectio Caesarea (60.0%) without any complications (73.3 %), and the Apgar score of the babies was ≥ 8 (53.3 %). Overall, the babies' condition was good in 86.7 % of cases.

Conclusion: The most common thyroid disorder suffered by pregnant women at Wahidin Sudirohusodo Hospital in 2019-2022 was hyperthyroidism, and most of them gave birth in good condition.

Keywords: Pregnant mothers, thyroid disorders, characteristics.

RESUMEN

DOI: <https://doi.org/10.47307/GMC.2023.131.s2.2>

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Recibido: 22 de noviembre 2022

Aceptado: 30 de diciembre 2022

Antecedentes: Al menos el 2 %-3 % de las mujeres embarazadas experimentan disfunción tiroidea, lo que afecta la salud de la madre y el bebé. Todavía hay poca investigación sobre mujeres embarazadas con trastornos de la tiroides.

Objetivo: Investigar las características de las mujeres embarazadas con trastornos de la tiroides en el Hospital Dr. Wahidin Sudirohusodo Makassar.

Métodos: Estudio retrospectivo descriptivo basado en datos de historias clínicas de 2019-2020.

Resultados: Hubo 15 de 399 gestantes (3,76 %) que presentaron trastornos tiroideos; la mayoría eran hipertiroideos (60%) sin antecedentes tiroideos previos (73,3 %). Tenían entre 20 y 35 años (86,7 %), etnia bugis (46,7 %), multíparas (60 %), antecedentes de parto por cesárea (56,7 %) e IMC normal (73,3 %).

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Las quejas de tiroides aparecieron por primera vez en el tercer trimestre (66,7 %) con un nivel alto de FT4 (46,7 %) y TSH normal (60,0 %). El método de parto actual fue la cesárea (60,0 %) sin ninguna complicación (73,3 %) y el puntaje de Apgar de los bebés fue ≥ 8 (53,3 %). En general, el estado de los bebés era bueno en el 86,7 % de los casos.

Conclusión: *El trastorno tiroideo más común que sufrieron las mujeres embarazadas en el Hospital Wahidin Sudirohusodo en 2019-202 fue el hipertiroidismo, y la mayoría dio a luz en buenas condiciones.*

Palabras clave: *Madres embarazadas, trastornos de la tiroides, características.*

INTRODUCTION

The thyroid is the largest endocrine gland in the human body, located at the front of the neck. The thyroid gland produces thyroxine (T4) and triiodothyronine (T3) which are controlled by feedback mechanisms involving Thyroid Stimulating Hormone (TSH). The abnormalities of thyroid function consist of hypothyroidism and hyperthyroidism (1). Disorders of the thyroid gland are the second most common endocrine disorder in the world after diabetes (2). The American Thyroid Association reported that about 20 million Americans experience some form of thyroid disease, and more than 12 % of the US population is estimated to have thyroid dysfunction during their lifetime (3). In Indonesia, based on the 2013 RISKESDAS, there are about 0.4 % of the population experiences hyperthyroidism (4). In 2017, the Indonesian Ministry of Health reported that as many as 17 million Indonesians experienced thyroid disorders, with the highest prevalence in South Sumatra (5).

Normal thyroid function is essential for fetal development. Deficiency or excess of thyroid hormone can occur in pregnancy and cause problems for both mother and baby. At least 2 % - 3 % of pregnant women are affected by thyroid dysfunction. Hyperthyroidism occurs in 0.2 % - 0.4 % of pregnant women and is commonly associated with Grave's disease. The incidence of hypothyroidism in pregnancy is

between 0.5 %-3.5 % and is usually caused by Hashimoto's thyroiditis. However, it can also be seen in areas with iodine deficiency (6).

Pregnant women with thyroid dysfunction need to get appropriate therapy and regular monitoring during pregnancy to protect the mother and baby (7). However, screening for thyroid abnormalities in every pregnancy is still not recommended, only performed on high-risk pregnant women. Furthermore, the lack of public knowledge about thyroid disease, limited facilities to check thyroid hormones, and differences in interpretation of typical thyroid function values in pregnant women make the risk of fetal death due to thyroid dysfunction still high, around 79 % (8,9). Therefore, recognizing the signs of thyroid disorders in pregnant women is essential. Unfortunately, now, there are still limited publications regarding this. So, this study aimed to examine the characteristics of pregnant women with thyroid disorders in Indonesia, especially in Makassar.

METHODS

This research is a descriptive study with a retrospective approach using data from the medical records of all pregnant women who perform antenatal care and childbirth at RSUP Dr. Wahidin Sudirohusodo Makassar from January 2019 to December 2020 or 2 years. The inclusion criteria in this study were all pregnant women diagnosed with thyroid disorders during antenatal care until after delivery. Meanwhile, the exclusion criteria are if there are incomplete thyroid function laboratory results.

RESULTS

In this study, we found that 399 pregnant women had their pregnancy checked at Dr. Wahidin Sudirohusodo Makassar from January 2019 to December 2020. Among them, 15 people were diagnosed with thyroid disorders and included in this research. The characteristics of our research sample are presented in Table 1.

Table 1. Characteristics of Pregnant Women with Thyroid Abnormalities at RSUP Dr. Wahidin Sudirohusodo Makassar Year 2019-2020

Characteristics Pregnant Women with Thyroid Disorders	Amount (15 people)	Percentage (%)
Age		
<20 years	0	0
20-35 years old	13	86.7
>35 years old	2	13.3
Mother's Tribe		
Makassar	6	40.0
Bugis	7	46.6
Mandarin	1	6.7
Tolaki	1	6.7
The gestational age of the mother at the time of the first symptom		
First Trimester	0	0
Second Trimester	5	33.3
Third Trimester	10	66.7
Thyroid complaints and history		
Complaints of thyroid disorders in pregnancy	11	73.3
History of thyroid disorders in pregnancy	4	26.7
Mother's nutritional status		
Body Mass Index		
Underweight	0	0
Normal	11	73.3
Overweight	2	13.3
Obesity	2	13.3
Upper arm circumference		
Normal	1	6.7
Not Listed in Medical Records	2	13.3

Based on Table 1, the proportion of pregnant women with thyroid disorders based on age occurred in the age group 20-35 years were 13 people (86.7 %) and aged more than 35 years two people (13.3 %). The highest proportion based on the ethnicity of pregnant women occurred in the Bugis tribe, which was seven people (46.6 %); while the Makassar tribe was six people (40.0 %), the Mandar and Tolaki tribes were one person each (6.7 %). In addition, this study found that symptoms related to thyroid disorders most often first appeared in the third trimester of pregnancy (66.7 %) compared to the second trimester (33.3 %), and there were only 26.7 % of mothers had a history of thyroid disorder before. We also found that 73.3 % of our sample had an average Body Mass Index (BMI), 13.3 % were overweight, and 13.3 % had obese.

Table 2. Diagnosis and Thyroid Function Test Result

Diagnosis and Laboratory Examination of Pregnant Women with Thyroid Disorders	Amount (15 people)	Percent (%)
Thyroid Disorders Diagnosis		
Hypothyroid	1	6.7
Hyperthyroid	9	60.0
Non-toxic goiter	5	13.3
TSH Thyroid Function Test		
Decrease	3	33.3
Normal	9	60.0
Increase	1	6.7
Thyroid Function Test FT4		
Decrease	1	6.7
Normal	7	46.7
Increase	7	46.7

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In this study, 60 % of pregnant women were diagnosed with hyperthyroidism, 6.7 % were diagnosed with hypothyroidism, and 33.3 % were diagnosed with non-toxic goiter. From the result of thyroid function tests, we found that 60 % of our sample had within a normal range of TSH, 33.3 % had low TSH, and 6.7 % had high TSH. Meanwhile, from the free T4 result, we found 46.7 % had a high level, 46.7 % had an average level result, and 6.7 % had a low-level result.

Table 3. Characteristics based on pregnancy history and perinatal condition

Characteristics	Amount (15 people)	Percent (%)
Pregnancy History		
Primipara	4	26.7
Multipara	9	60.0
Grande para	2	13.3
Childbirth History Previously		
Only Sectio Cesarean procedure	8	56.7
Just Normal	2	13.3
Never gave birth before	5	30.0
Current Method of Delivery		
Sectio Cesarean procedure	9	60.0
Normal	6	40.0
Experiencing Complications During Labor		
Bleeding Complications	4	26.7
No Complications	11	73.3
Condition of the Baby Born		
Born Healthy	13	86.7
Died	2	13.3
Condition of the Baby Born		
No Resuscitation	13	86.7
Requires Resuscitation	2	13.3
APGAR ScoreBaby		
8	8	53.3
<8	5	33.3
Weight and Length of Babies Born		
Normal	8	53.3
LBW and short	5	33.3

In this study, from pregnancy history, we found that 60 % of pregnant women were multipara, 26.7 % were primipara dan 13.3 % were Grande para. Among those women, 56.7 % had a history of cesarean section for previous labor methods,

13.3 % had a regular procedure, and 30 % never gave birth. Meanwhile, based on the current delivery method, 60 % had a section cesarean procedure, and 40 % had the standard way. However, about 26.7 % of pregnant women experience complications during childbirth, and 73.3 % do not.

In this study, we found 86.7 % of babies were born healthy, but 13.3 % died after some time of intensive therapy. Among those healthy babies, 53.3 % had an APGAR Score of more than eight, and 33.3 % had APGAR Score below eight. In addition, about 53.3 % of babies had average weight and length, while 33.3 % had low birth weight and short size.

DISCUSSION

This study's results align with research conducted by Dülek in 2019, which show that at least 2 % -3 % of pregnant women are affected by thyroid dysfunction. Hyperthyroidism occurs in 0.2 %-0.4 % of pregnant women. Furthermore, hyperthyroidism during pregnancy can cause complications such as stillbirth, abortion, premature birth, preeclampsia, heart failure, and thyroid storm (7).

The highest age group in this study was the age group of 20-35 years. This result is in line with research conducted by Cooper and Laurberg (2013) who found that the highest incidence of hyperthyroidism was found in women aged > 30 years, and the incidence was around 55-80 per 100 000 people per year. Whereas in women aged 20-29 years, the incidence is 35-50 cases per 100 000 per year, and for women younger than 20 years, the risk is much lower (10).

Based on RISKESDAS in 2013, the prevalence of hyperthyroidism in South Sulawesi province was the fourth highest in Indonesia, with a prevalence of around 0.5 %. However, concerning pregnant women, to the best of the author's knowledge, this study is the first to publish the incidence of thyroid disorders in pregnant women in Indonesia, especially in Makassar, South Sulawesi. Our study also found that most pregnant women with thyroid disorders came from the Bugis and Makassar ethnic groups.

Diagnosis and complaints of thyroid disorders in pregnant women in this study were found in the second and third trimesters, similar to research conducted by Gheorghiu et al., 2021. In most cases, thyroid disorders in pregnancy, such as subclinical hyperthyroidism, appear after the sixth week of pregnancy due to increased physiological secretions (11).

In this study, we found that most pregnant women had normal BMI with average TSH levels and increased FT4, which is in line with Kumar et al., in 2017. BMI significantly correlates with TSH levels during the first and second trimesters of normal pregnancy. Higher average TSH values while lower normal range FT4 were found in obese pregnant women compared to average-weight pregnant women. Nevertheless, this correlation was not seen in pregnant women with euthyroid (12).

In this study, most pregnant women with thyroid disorders had a history of multiparous pregnancy. This result is in line with the 2021 Khakurel et al. study, which found that the prevalence of pregnant women with thyroid disorders with a history of primiparas is less than multiparas (13), history and delivery method by cesarean section had the highest proportion in this study. This choice may be due to consideration of the possibility of complications that might worsen the condition of the baby and mother (7).

Complications experienced by pregnant women with thyroid disorders during childbirth in the study were postpartum hemorrhage, which occurs only in 13.3 % of pregnant women. This result was in line with research by Tudosa et al., in 2010; complications of postpartum hemorrhage by 18.3 % occur through uterine hypotony and coagulation disorders (14).

In this study, we found that most of the babies that were born had average weight and length. Meanwhile, Tudosa et al., in 2010 and Dulek in 2019 found that hypothyroidism and hyperthyroidism can cause prematurity, fetal heart complications, low birth weight babies, and increased frequency of cesarean delivery. However, if treated quickly and appropriately, the results will be good (7,14).

Two babies required intensive care due to jaundice, hypothyroidism, and APGAR score

under eight. Congenital hypothyroidism can cause mental retardation unless thyroid therapy is given within two weeks of birth, with initial screening TSH and T4 measurements. Meanwhile, resuscitation was carried out based on the neonatal resuscitation algorithm (15).

CONCLUSION

Most pregnant women with thyroid abnormalities in RSUP Wahidin Sudirohusodo Makassar were hyperthyroid without previous history of thyroid disease, and the first symptom commonly appeared in the third trimester. Most of them were aged 20-35, Bugis ethnicity, had normal BMI, normal TSH, and increased FT4. In this study, it was found that section Caesarea was preferred as the delivery method, with minimal complications and the condition of the fetus was quite good.

Conflicts of Interest

The authors declare no conflict of interest.

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