

Characteristics of Thyroiditis Patients in Dr. Hasan Sadikin General Hospital in 2009–2013

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Abstract

Background: It is reported that thyroid diseases affect around 200 million people in the world. One of them is thyroiditis that may cause the risk of cancer. Moreover, thyroiditis can also cause hormonal disorders, such as hypothyroid and hyperthyroid. It is assumed that thyroiditis has distinctive clinical characteristics. The aim of this study was to evaluate the characteristics of thyroiditis based on age, gender, location, and clinical features of the patient.

Methods: The study was conducted using descriptive-retrospective method. The data were collected from patients' medical records through total sampling from January 2009 to December 2013 in Dr. Hasan Sadikin General Hospital, Bandung.

Results: It was found 35 cases of thyroiditis. Based on the histopathological type, the most frequently found thyroiditis was Hashimoto's thyroiditis. Based on age, thyroiditis mostly affected people at age 41–60 years old. Based on the gender, thyroiditis mostly affected female and the location of lesions were bilateral. The majority clinical features of patients were hypothyroid in Hashimoto's thyroiditis, hyperthyroid in acute thyroiditis, and normothyroid in sub-acute granulomatous thyroiditis.

Conclusions: Based on age, gender, and the location, the majority type of thyroiditis did not show specific characteristics. However, thyroiditis showed specific characteristics based on the clinical features of patient. [AMJ.2016;3(1):49–53]

Keywords: Hashimoto's thyroiditis, hyperthyroid, thyroiditis

Introduction

It is predicted that about 200 million people in the world experienced thyroid diseases.¹ In Africa² the phenomena of thyroid diseases are common phenomena. One of the thyroid diseases is called thyroiditis which can cause the imbalances of thyroid' functions; both hypothyroid and hyperthyroid.^{3,4} Moreover, thyroid gland disorders may also cause threatening cancer, thyroid cancer.⁵⁻⁷ The study about thyroid gland disorder in Sri Lanka showed that there were 6.51% cases of Hashimoto's thyroiditis. Hashimoto's thyroiditis is the fourth case of the most thyroid disorder cases occurred in India.⁸ In addition, the study conducted in Utah, Nevada and Arizona showed that the prevalence of thyroiditis case are 5.13%.⁹

Some types of thyroiditis diseases are

assumed having certain characteristics based on age, location, clinical features and gender of the patient.^{4,10-12} Hashimoto's thyroiditis is one type of thyroiditis that mostly cause the decrease of thyroid hormone (hypothyroid).^{3,13} This disease has risk three times greater than other thyroiditis in threatening the thyroid gland.^{11,14,15} In addition, sub-acute thyroiditis also may increase the risk of myeloproliferative disorders, lymphoproliferative neoplasms and thyroid lymphoma.⁶ In Indonesia, the study of thyroiditis disease is still rare. Therefore, this study was conducted to evaluate and describe the characteristics of thyroiditis in Bandung, Indonesia.

Methods

This was a descriptive quantitative retrospective study. The data were taken from

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the medical records of Pathology Anatomy Department and the Medical Records Center of Dr. Hasan Sadikin General Hospital, Bandung during five periods (1th January 2009-31th December 2013).

The samples of the study were all the patients which were diagnosed thyroiditis based on histopathology such as Hashimoto's thyroiditis, subacute granulomatous thyroiditis, subacute lymphocytic thyroiditis, acute thyroiditis, Riedel's thyroiditis, and palpation thyroiditis (multifocal granulomatous folliculitis). The sampling technique used in the study was non-probability sampling, particularly total sampling. There was no exclusion in this study; the samples were the inclusion of all thyroiditis patients varied based on the age, gender, location, clinical features. Thirty five samples taken from medical records had been permitted as the samples of this study by Health Research Ethics Committee.

The data found were classified into several variable such as age, gender, clinical features (thyroid functions), and location of the occurrence of the lesion (lobes dextra, sinistra, or bilateral). Thus, the data related to the clinical features about the condition of thyroid function of the patients such as hyperthyroid, normothyroid (euthyroid), and hypothyroid could be obtained. After that, the data was presented in form of frequency in a table.

Results

Based on the histopathology type, the most common type of thyroiditis was Hashimoto's thyroiditis, followed by acute thyroiditis, sub-acute granulomatous thyroiditis, sub-acute lymphocytic thyroiditis, and Riedel's thyroiditis. The case that was not found in this study was multi focal granulomatous folliculitis or thyroiditis palpation.

According to the gender, from the 35 cases of thyroiditis, it was found that the thyroiditis cases were mostly occurred in women than men (Table 2). The ratio between women and men were 4.8:1. However, subacute granulomatous thyroiditis, Riedel' thyroiditis, and subacute lymphocytic thyroiditis only occurred in women. Based on the location, thyroiditis cases were mostly found at bilateral. Meanwhile, subacute and acute thyroiditis was only found at dextra lobe (right lobe).

Thyroiditis frequency based on age, majority were found at age 41–60 years old. In this study, sub-acute lymphocytic thyroiditis and Riedel' thyroiditis was only found at

Table 1 Frequency of thyroiditis based on histopathology

Thyroiditis	N
Hashimoto	25
Subacute granulomatous	3
Subacute lymphocytic	1
Acute	5
Riedel	1
Palpation	0
Total	35

age 41–60 years old. According to clinical features, thyroiditis cases were mostly found in hypothyroid condition. Thyroid function of acute thyroiditis was only found at hyperthyroid and in Hashimoto' thyroiditis was only found at hypothyroid.

Discussions

Hashimoto' Thyroiditis was the most frequently thyroiditis type in this study. It might be happened since Hashimoto' Thyroiditis is an autoimmune disease so that the possibilities to be occurred is higher than other types of Thyroiditis.³ The TSH receptor is antigenic site which has important role in the process of autoimmune disease. Autoantibodies may act as an antagonists to the receptor TSH mimicking the actions of TSH in the case of Hashimoto's thyroiditis.¹³

According to the frequency of thyroiditis based on the gender, the ratio of Hashimoto' thyroiditis between women and men was 4:1. Those data were in line with the study conducted by Siriweera and Ratnatunga⁵ at Sri Lanka, Rosai and Ackermen¹⁰ and Ott et al.¹⁶ They stated that Hashimoto' Thyroiditis case more frequently occurred in women than men. However, the ratio (4:1) was different from the result of the research conducted by Siriweera and Ratnatunga⁵ found that the ratio between women and men was 10.3:1. Furthermore, acute thyroiditis mostly occurred on women than men with the comparison 4:1. It was contrast with Wiyono's¹² statement that the ratio of acute thyroiditis of women and men was 1:1.

Based on the data, subacute granulomatous thyroiditis more often occurred on women than men. This result was related to Rosai and Ackermen¹⁰ who stated that sub-acute

Table 2 Characteristics of thyroiditis based on gender, age, location and clinical features

Characteristics	Thyroiditis					
	HSM	SGR	SLF	ACT	RDL	MGF
	N=25	N=3	N=1	N=5	N=1	N=0
Gender						
Male	5	0	0	1	0	0
Female	20	3	1	4	1	0
Not recorded	0	0	0	0	0	0
Location						
Dextra	4	1	1	2	0	0
Sinistra	2	0	0	0	0	0
Bilateral	8	2	0	0	1	0
Not recorded	11	0	0	3	0	0
Age (year)						
0–20	0	0	0	0	0	0
21–40	7	2	0	2	0	0
41–60	16	1	1	3	1	0
>60	2	0	0	0	0	0
Not recorded	0	0	0	0	0	0
Clinical features						
Hyperthyroid	0	0	0	2	0	0
Normothyroid	0	2	0	1	0	0
Hipothyroid	5	0	0	0	0	0
Not recorded	20	1	1	2	1	0

Note: *HSM: Hashimoto, SGR: Subacute granulomatous, SLF: Subacute lymphocytic, ACT: acute, RDL: Riedel, MGF: Multifocal granulomatous folliculitis/palpation

granulomatous thyroiditis mostly occurred on women than men with the ratio 4:1.

The cases of subacute lymphocytic thyroiditis and Riedel' thyroiditis showed that both were mostly found on women. It was the same as Wiyono's¹² statement that subacute lymphocytic thyroiditis and Riedel' thyroiditis more often occurred on women than men. The literature mentioned that the ratio of women and men in subacute lymphocytic thyroiditis is 2:1 while in Riedel' thyroiditis case is 3-4:1. The possible explanation for the fact that thyroiditis occurred much more often on women because of the relation between X chromosome and immune-related genes which can cause preservation of immune tolerance.¹¹ It is mentioned that hormone affects the binding-hormone capacity, for instance, when estrogen increases then it will affect the escalation of binding protein synthesis for thyroid hormone.¹³ The difference between

ratio in this research and ratio in the literature is probably caused by the different number of samples.

According to the location of the inflammation, it was found 8 bilateral cases of Hashimoto' thyroiditis, 4 dextra cases of Hashimoto' thyroiditis, and 2 sinistra cases of Hashimoto' thyroiditis. It can be inferred that Hashimoto' thyroiditis frequently occurred in bilateral. However, the literature about such phenomenon has not discovered yet. Furthermore, bilateral also became the most frequent location of subacute granulomatous thyroiditis. This result was accordance with Rosai and Ackermen¹⁰, which argued that sub-acute granulomatous thyroiditis mostly occurred in both of lobes or bilateral. In addition, subacute lymphocytic thyroiditis mostly occurred in dextra lobe (right lobe).

Cases of acute thyroiditis found occurred in dextra lobe (right lobe). It was in line

with Longo et al.³ who mentioned that acute thyroiditis occurred more often in a lobe (unilateral); It can be happened since the right part of ultimo branchial body atrophy and does not develop in the period of human thyroid gland formation. In addition, it was found one case of Riedel' thyroiditis occurred in bilateral. It was not in accordance with the study conducted by Longo et al.³ and Papi and LiValsi¹⁷ who revealed that Riedel's thyroiditis mostly occurred in a lobe or unilateral, either dextra or sinistra. In sub-acute thyroiditis, the inflammation sometimes could attack a lobe which is then immigrated to the another lobe, called "creeping" thyroiditis.¹³

Table 2 shows the frequency of thyroiditis based on age. It can be seen that Hashimoto's thyroiditis frequently occurred in the aged group of 41-60 years old. This result was in line with a result of the research conducted by Siriweera and Ratnantunga⁵ in Sri Lanka which revealed that Hashimoto' thyroiditis mostly happened in aged group of 41-60 years old. Meanwhile, sub-acute granulomatous thyroiditis case mostly occurred in age 21-40 years old and followed by the age 41-60 years old. This result was nearly similar with literature from Longo et al.³ who argued that the cases frequently occurred in age 30-50 years old and age 20-60 years old and the study investigating 162 cases as samples conducted by Woolner et al. in Rosai and Ackerman¹⁰

In contrast with Wiyono¹² who showed that sub-acute lymphocytic thyroiditis, mostly attack people aged 30-40 years old, this study showed that sub-acute lymphocytic thyroiditis was more often on people age 41-60 years old. As well as sub-acute lymphocytic thyroiditis, acute thyroiditis frequently occurred on people aged 41-60 years old. It was different from Rosai and Ackerman¹⁰ statement that acute thyroiditis mostly occurred in people aged 21-40 years old. In addition, Riedel' thyroiditis mostly happened in people aged 41-60 years old. It was quite similar to Longo et al.³ and Rosai and Ackerman¹⁰ who argued that Riedel' thyroiditis more frequently occurred on people aged 30-50 years old. Some thyroiditis cases were mostly found in people aged 41-60 years old and were not found in group of people aged 0-20 years old. It could be happened since there were the descents of immune system in people aged above 40 years old so that they were more susceptible to the disease while thyroiditis in children was usually caused by physical and cognitive interference.¹⁸

Frequency of thyroiditis based on clinical description was seen according to the function

of thyroid; hyperthyroid, normothyroid, and hypothyroid. Based on clinical features, the majority of Hashimoto' thyroiditis cases are in hypothyroid. It comports with the study conducted by Staii et al.¹⁹ Hypothyroid in adult patient can be caused by the decrease of cell in thyroid gland. Furthermore, it can be caused by autoimmune disease that damages the parenchyme of thyroid gland and as the effect of surgery or radioactive iodine therapy. Moreover, hypothyroid is also caused by the enlargement of the thyroid gland as the consequence of lymphocytic infiltration in Hashimoto' thyroiditis case.¹³

In addition, in sub-acute granulomatous thyroiditis case, most patients experienced normothyroid. It is similar to the study conducted by Li et al.²⁰ in China. The study mentioned that thyroid function in sub-acute granulomatous thyroiditis' case is usually discovered in normothyroid condition. It might be happened since the major of thyroid gland was not damaged.²⁰ However, sub-acute granulomatous thyroiditis was frequently found in hypothyroid.¹³ Thyroid function (clinical feature) showed that acute thyroiditis mostly occurred in hyperthyroid and acute thyroiditis was frequently revealed in hyperthyroid.¹³

Based on the result of the study, it can be inferred that almost all types of thyroiditis have similar characteristics according to age, gender, and location. However, according to the clinical features (thyroid functions), thyroiditis has particular characteristics for each type. Hashimoto thyroiditis was mostly found in hypothyroid; granulomatous thyroiditis was mostly found in normothyroid; and acute thyroiditis was mostly found in hyperthyroid. By founding those characteristics, it is expected that it can help the process of diagnosis and therapy of the patients.

The limitation of this study is the samples that were 35 samples. Meanwhile, in order to be able to represent the cases generally, the sample should be 74 samples. Therefore, the results of this study do not represent the thyroiditis case. In addition, some variables in the medical record were not complete enough. The similar studies are still rarely conducted. Therefore, they become another limitation of the study. Thus, those studies led to the difficulties in finding related literature especially journal. The difference of the study's results with the previous study might be arousen because of different samples.

Based on the results of the study it is recommended to conduct the study by

involving minimum numbers of samples to be able to describe the case generally. It can be done by adding the samples from the period of the medical records, more hospitals and investigates thyroiditis beside on age, gender, location and clinical features (thyroid functions).

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