**Characteristics of Thyroiditis Patients**

**in Dr Hasan Sadikin General Hospital in 2009-2013**

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**Abstract**

**Background:** It is reported that around 200 milions people in the world are affected by thyroid diseases. One of the thyroid diseases 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.

**Method:** The study was conducted using descriptive restrospective method. The data collected from patient medical records, from January 1st, 2009 to Desember 31st, 2013 in Dr Hasan Sadikin Bandung General Hospital, Bandung**.** 35 cases were collected as samples through total sampling.

**Result:** Based on the histopathology type, the most frequently found thyroiditis was Hashimoto’s thyroiditis. Then based on age, thyroiditis mostly affected people at age 41-60. 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 subacute granulomatous thyroiditis.

**Conclusion:** The majority type of thyroiditis did not show specific characteristics based on age, gender, and the location. However, thyroiditis showed specific characteristics based on the clinical features of patient.

**Keywords:** Bandung**,** Characteristics, Thyroiditis

**Karakteristik Pasien Tiroiditis di RSUP Dr Hasan Sadikin**

**Tahun 2009 -2013**

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**Abstrak**

**Latar Belakang**: Diperkirakan sekitar 200 juta penduduk di dunia mengalami gangguan tiroid. Salah satu gangguan tiroid yang menyebabkan peningkatan risiko penyakit kanker adalah tiroiditis. Selain itu, tiroiditis juga dapat menyebabkan gangguan hormonal yaitu hipertiroid maupun hipotiroid. Penyakit tiroiditis diduga memiliki karakteristik tertentu ditinjau dari usia, jenis kelamin, lokasi dan gambaran klinis. Penelitian ini dilakukan guna mengetahui karakteristik tiroiditis untuk mempermudah proses diagnosis dan terapi.

**Metode**: Penelitian dilakukan dengan metode deskriptif restrospektif menggunakan data rekam medik selama 5 tahun, yaitu 1 Januari 2009 sampai dengan 31 Desember 2013 di RSUP Dr Hasan Sadikin. Sebanyak 35 kasus diambil dengan cara *total sampling* pada penelitian ini.

**Hasil**: Kasus tiroiditis paling banyak berdasarkan tipe histopatologinya adalah tiroiditis Hashimoto. Usia yang paling banyak ditemukan adalah golongan usia 41-60 tahun. Ditinjau dari jenis kelamin paling banyak ditemukan pada perempuan dengan lokasi paling banyak adalah bilateral. Mayoritas gambaran klinis yang ditemukan adalah hipotiroid untuk tiroiditis Hashimoto, hipertiroid untuk tiroiditis akut dan normotiroid untuk tiroiditis granulomatosa subakut.

**Kesimpulan:** Pada umumnya semua tipe tiroiditis tidak menunjukkan karakteristik tertentu ditinjau dari usia, jenis kelamin dan lokasinya. Akan tetapi kasus ini memiliki karakteristik tertentu jika dilihat dari gambaran klinisnya.

**Keyword**s : Bandung, Karakteristik, Tiroiditis

**Introduction**

It is predicted that around 200 millions people in the world experienced thyroid diseases.1 In Africa, the phenomena of thyroid dieseases are common phenomena.2 One of the thyroid diseases is called thyroiditis can cause the imbalances of thyroid’ functions; both hypothyroid and hyperthyroid.6,7 Moreover, thyroid gland disorders also may cause threatening cancer, thyroid cancer.3-5 The study about thyroid gland disorder in Sri Lanka showed that there was 6.51% cases of Hashimoto’s thyroiditis. In India, Hashimoto’s thyroiditis case is in the fourth place of the most thyroid disorder cases occurred.8 In addition, the study conducted in Utah, Nevada and Arizona showed that the prevalance 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.7, 10-12 Hashimoto’s thyroiditis is one type of thyroiditis that mostly cause the decrease of thyroid hormone (hypothyroid).6, 13 This disease has risk three times greater than other thyroiditis in threatening the thyroid gland.11, 14, 15 In addition, subacute thyroiditis also may increase the risk of myeloproliferative disorders, lymphoproliferative neoplasms and thyroid lymphoma.4 In Indonesia, the study of thyroiditis disease is still rare. Therefore, this study is conducted to evaluate and uderstand the characteristics of thyroiditis in Bandung, Indonesia.

## Methods

This was a descriptive quantitative retrospective study. The data were taken from the medical records of Pathology Anatomy Departement and from the Medical Records Center of Dr. Hasan Sadikin hospital, Bandung. The medical records taken were the data 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 which varied based on the age, gender, location, clinical features. 35 samples taken from medical records had been permitted as the samples of this study by Ethical Clearance Comittee.

## The procedures of finding the data firstly by searching the data of the patients who have histopathology diagnosis thyroiditis from Pathology Anatomy Departement medical records, then 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). The next step done was searching the data in the Medical Records Center by using the same medical record number from the medical records of Pathology Anatomy Department. Thus, the data related with clinical features about the condition of thyroid function of the patients such as hyperthyroid, normothyroid, and hypothyroid could be obtained. After that, the data gained were organized by using *Microsoft Excel* and *Statistical* *Software* program into several characteristics of each type of thyroiditis and presented in form of frequency in a table. Since the samples were 35 samples (it less than 40 samples) so that it could not be presented in form of percentage.

## Results

A descriptive retrospective research was conducted to describe thyroiditis characteristics based on gender, location, age, and clinical features of the patients. The data were taken from the medical records of five periods (1th January 2009-31th December 2013) of Dr. Hasan Sadikin hospital, Bandung. It was found 35 cases of thyroiditis.

Table 1. Frequency of thyroiditis based on histopathology

|  |  |  |
| --- | --- | --- |
| **No** | **Thyroiditis** | **N** |
| 1 | Hashimoto | 25 |
| 2 | Subacute granulomatous | 3 |
| 3 | Subacute lymphocytic | 1 |
| 4 | Acute | 5 |
| 5 | Riedel | 1 |
| 6 | Palpation | 0 |
| **Total** | | 35 |

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

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 |

\*HSM: Hashimoto, SGR: Subacute granulomatous,SLF: Subacute lymphocytic, ACT: acute, RDL: Riedel, MGF: Multifocal granulomatous foliculitis/palpation.

According to the gender (See table 2), From 35 cases of thyroiditis it was found that the thyroiditis cases were mostly occurred in women than men. 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 mostly found at bilateral. Meanwhile, subacute and acute thyroiditis was only found atdextra lobe (right lobe).

Thyroiditis frequency based on age, majority found at age 41-60. In this study, subacute lymphocytic thyroiditis and Riedel’ thyroiditis were only found at age 41-60. 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.

## Discussion

According to the 35 Thyroiditis cases found, Hashimoto’ Thyroiditis was the most frequently Thyroiditis found. It might be happened since Hashimoto’ Thyroiditis is an autoimmune disease so that the possibilities to be occurred is higher than others types of Thyroiditis.6 TSH receptor is antigenic site which has important role in the process of autoimmune disease. Autoantibodies may act as 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 was in line with the study conducted by Siriweera et al at Sri Lanka, Ott et al, and Rosai & Tallini that state Hashimoto’ Thyroiditis case was more frequently occurred in women than men.3, 10, 16 However, the ratio (4:1) was different with the result of the research conducted by Siriweera *et al* (2010) which found that the ratio between women and men was 10.3:1.3 Furthermore, acute thyroiditis is mostly occurred in women than men with the comparison 4:1. It was contrast with Wiyono who stated that the ratio of acute thyroiditis of women and men was 1:1.12

Based on the data, subacute granulomatous thyroiditis occurred more often to women than men. This result was in line with Rosai and Tallini who say that subacute granulomatous thyroiditis mostly occurred on women than men with the ratio 4:1.10

The cases of subacute lymphocytic thyroiditis and Riedel’ thyroiditis showed that both were mostly found on women. It was the same as Wiyono that subacute lymphocytic thyroiditis and Riedel’ thyroiditis were occurred more often on women than men. The literature mentions that the ratio of women and men in subacute lymphocytic thyroiditis is 2:1 while in Riedel’ thyroiditis case is 3-4:1.12 The possible explanation for the fact that thyroiditis occurred much more often to women is it might be occurred 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 increase then it would 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, Hashimoto’ thyrioditis was 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 comports with Rosai and Tallini which argue that subacute granulomatous thyroiditis was mostly occurred in both of lobes or bilateral.10 In addition, subacute lymphocytic thyroiditis mostly occurred in dextra lobe (right lobe).

Cases of acute thyroiditis were found occurred in dextra lobe (right lobe). It is in line with Lazarus and Hannesey who mention 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.6 In addition, it was found one case of Riedel’ thyroiditis occurred in bilateral. It does not comport with the study conducted by Giampaolo et al and Lazarus and Hannesey who revealed that Riedel’s thyroiditis was mostly occurred in a lobe or unilateral, either dextra or sinistra.6, 17 In subacute 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 was frequently occurred in 41-60 age grup. This result was in line with a result of the research conducted by Siriweera et alin Sri Lanka (2010) which revealed that Hashimoto’ thyroiditis was mostly occurred in age 41-60.3 Meanwhile, subacute granulomatous thyroiditis case was mostly occurred in age 21-40 and followed by the age 41-60. This result was nearly similar with the study investigating 162 cases as samples conducted by Woolner et aland literature from Rosai and Tallini who argue that the cases frequently occurred in age 30-50 and age 20-60.6, 10

In contrast with Wiyono (2009) who showed that subacute lymphocytic thyroiditis mostly attack people aged 30-4012, this study showed that subacute lymphocytic thyroiditis was frequently occurred in people age 41-60. As well as subacute lymphocytic thyroiditis, acute thyroiditis was frequently occurred in people age 41-60. It contrasts with Rosai and Tallini who stated that acute thyroiditis mostly occurred in people aged 21-40.10 In addition, Riedel’ thyroiditis mostly occurred in people age 41-60. It was quite similar to Lazarus and Rosai who argue that Riedel’ thyroiditis occurred more often to people aged 30-50.6, 10 Some thyroiditis cases were mostly found in people age 41-60 and not found in group of people age 0-20. It could be happened since there were the descents of immune system in people aged above 40 so that they more susceptible toward 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(2010).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 also as the effect of surgery or radioactive iodine therapy. Moreover, hypothyroid was also caused by the enlargement of the thyroid gland as the consequence of lymphocytic infiltration in Hashimoto’ thyroidis case.13

In addition, in subacute granulomatous thyroiditis case, the patients were mostly found in normothyroid. It is in line with the study conducted by Li et al in China (2013) which mentioned that thyroid function in subacute granulomatous thyroiditis’ case usually discovered in normothyroid condition. It might be happened since the major of thyroid gland was not damage.20 However, it is in contrast with Cooper who says that subacute granulomatous thyroiditis was frequently found in hyphothyroid.13 Thyroid function (clinical feature) showed that acute thyroiditis was mostly occured in hyperthyroid. This result was in line with Cooper who mentioned that acute thyroiditis was frequently revealed in hyperthyroid.13

Based on the result of the study, it can be inferred that almost 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 can help the process of diagnosis and therapy of the patients.

The limitation of this study is the research only took one so the description of thyroiditis case in bigger population cannot be portrayed. The samples of the research matching with the inclusion criteria were 35 samples. Meanwhile, in order to be able to represents the cases generally, the sample should be 74 samples. For its reason, that is why the result of this research has not generally represents the thyroiditis case. In addition, there were some variables in the medical record that were not complete enough so that the data analysis only done by using the variables that recorded on the medical record. The similar studies are still rarely conducted become another limitation of the study. Thus, it led to the difficulties in finding related literature especially journal. The difference of the result of the study with the previous study might be happened because of samples differences.

Based on the results of the study, there are some recommendations that hopefully can be useful. The recommendations are proposed for further researchers who investigate study in the same topic. 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 period of the medical records for samples or adding more hospitals for taking the samples. Furthermore, it is also suggested to conduct the study that not only investigates thyroiditis based on age, gender, location and clinical features (thyroid functions) but also others.

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