



## HYPOTHYROIDISM

# First-degree family members of patients with hypothyroidism due to Hashimoto's Thyroiditis have an increased risk of developing hypothyroidism

### BACKGROUND

The most common cause of hypothyroidism is Hashimoto's thyroiditis. This is an autoimmune disease where the patient's antibodies, which usually fight infection, get confused and attack the body. In the case of Hashimoto's thyroiditis, the antibodies attack the thyroid and destroy it. As the disease progresses, the thyroid gland is unable to produce enough thyroid hormone and the patients develop hypothyroidism. Family members of patients with hypothyroidism due to Hashimoto's thyroiditis have a higher risk to develop this disorder, but it is unclear what degree is this risk. The aim of this study was to evaluate the risk of developing the disease in first-degree relatives (parents, children, siblings) of patients with hypothyroidism due to Hashimoto's thyroiditis as compared with the general population in an Indian population.

### THE FULL ARTICLE TITLE

Bothra N et al Hashimoto's thyroiditis: relative recurrence risk ratio and implications for screening of first degree relatives. Clin Endocrinol (Oxf). 2017 Aug;87(2):201-206.

### SUMMARY OF THE STUDY

This large study evaluated the families of 264 patients with hypothyroidism due to Hashimoto's thyroiditis who were receiving medical care at a single hospital in Western India. A total of 861 first-degree relatives of these patients (205 parents, 336 siblings, 320 children) underwent thyroid evaluation, including physical exam for presence of a goiter, serum thyroid function tests, and serum thyroid antibodies.

Serum thyroid antibodies were present in 38% of the 861 first-degree relatives, while only 17% of relatives had hypothyroidism due to Hashimoto's thyroiditis. A higher percentage of female relatives had thyroid antibodies and hypothyroidism due to Hashimoto's thyroiditis as

compared to males. Goiter was found on exam in 31% of relatives.

A total of 46 % of the 264 patients with hypothyroidism due to Hashimoto's disease included in the study had at least one affected relative. The overall risk of the first-degree relatives of developing the disease was 9-fold higher as compared to the general population. Specifically, parents and siblings each had a 6-fold higher risk, while children had a 3-fold higher risk of developing hypothyroidism due to Hashimoto's disease. There was a gradual increase in the risk of developing thyroid antibodies and hypothyroidism due to Hashimoto's thyroiditis with age, the risk being higher than in the general population starting at age 20 in females and age 27 in males.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In this study from India, first-degree relatives of patients with hypothyroidism due to Hashimoto's thyroiditis have a 9-fold higher risk to develop this disease as compared to the general population; studies from other regions have reported similar results. These findings suggest an important genetic element in the development of hypothyroidism due to Hashimoto's thyroiditis. Further, it is important for physicians to be aware of this increased risk of developing hypothyroidism and have a lower threshold for testing for thyroid disease in patients with a relative with hypothyroidism.

— Alina Gavrilă, MD, MMSC

### ATA THYROID BROCHURE LINKS

Hashimoto's Thyroiditis: <https://www.thyroid.org/hashimotos-thyroiditis/>

Hypothyroidism (Underactive): <https://www.thyroid.org/hypothyroidism/>

Thyroid Function Tests: <https://www.thyroid.org/thyroid-function-tests/>





## HYPOTHYROIDISM, continued

### ABBREVIATIONS & DEFINITIONS

**Autoimmune thyroid disease:** a group of disorders that are caused by antibodies that get confused and attack the thyroid. These antibodies can either turn on the thyroid (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism).

**Hashimoto's thyroiditis:** the most common cause of hypothyroidism in the United States. It is caused by antibodies that attack the thyroid and destroy the gland.

**Thyroid antibodies:** these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease. The main thyroid antibodies that can be measured in the blood are thyroid peroxidase (TPO) and thyroglobulin antibodies.

**Hypothyroidism:** a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

**Thyroid function tests:** blood tests which help to check whether the thyroid gland produces the right amount of thyroid hormones. These tests include the thyroid stimulating hormone test (TSH), the thyroxine test ( $T_4$ ), and the triiodothyronine test ( $T_3$ ).

**Goiter:** a thyroid gland that is enlarged for any reason is called a goiter. A goiter can be seen when the thyroid is overactive, underactive or functioning normally. If there are nodules in the goiter it is called a multinodular goiter.

