

## COMPARISON OF THE INCIDENCE OF HYPOCALCEMIA IN THYROIDECTOMY DUE TO MULTI-NODULAR GOITER AND THYROID CANCER

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### ABSTRACT

**Introduction:** Thyroid disease, especially nodular lesions, is one of the most common diseases in recent years. Non-toxic nodular goiter multinodular is a common thyroid problem, which increases with increasing age. Multi-nodular malformation can cause Excessive glandular enlargement and more than any other thyroid disease with glandular neoplastic involvement. In fact, multi-nodular goiter is benign, but there are some focal regions of malignant changes that cannot be detected by physical examination, ultrasonography, or radioisotope scanning, and only after extraction of the tuber by surgery and its pathological examination.

**Method:** This descriptive-analytic study was a retrospective study in which 180 patients underwent total thyroidectomy, which was the cause of this multi-nodular goiter or thyroid cancer. This study was conducted to investigate the patients referred to Shahid Beheshti Hospital in 2016 and 2017. Meanwhile, 86% of the patients were female with thyroidectomy. The cause of thyroidectomy was multiple nodular goiter and thyroid cancer. The cause of the action was based on the case, the description of the practice and the doctor's opinion, as well as the answer to the pathology sample. In order to select the sample, all files of patients under complete thyroidectomy were selected and counted.

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**Discuss:** The aim of this study was to compare the incidence of hypocalcaemia in thyroidectomy with the cause of multiple nodular goiter and thyroid cancer. The first finding from the present study was that there was no significant difference in incidence of hypocalcemia in thyroidectomy due to MNG and thyroid carcinoma. Since surgery has been performed in a university hospital with a large number of patients and has been carried out by surgeons with sufficient surgical experience and skill, there is no significant difference in the incidence of hypocalcemia in thyroidectomy due to the multi-nodular goiter and thyroid cancer, as a result of this issue.

**Conclusion:** The results of this study showed that there is no difference between the incidence of hypocalcemia in thyroidectomy and the cause of multinodular goiter and thyroid cancer.

**Keyword:** hypocalcemia, thyroidectomy, multi-nodular goiter

## INTRODUCTION

Thyroid disease, especially nodular lesions, is one of the most common diseases in recent years (1). Non-toxic nodular goiter multinodular is a common thyroid problem, which increases with increasing age (32). Multi-nodular malformation can cause Excessive glandular enlargement and more than any other thyroid disease with glandular neoplastic involvement (4). In fact, multi-nodular goiter is benign, but there are some focal regions of malignant changes that cannot be detected by physical examination, ultrasonography, or radioisotope scanning, and only after extraction of the tuber by surgery and its pathological examination (5).

On the other hand, environmental factors such as goiter and genes, malnutrition, medications, thyroiditis, genetic factors and female sex are involved in it (2). Occurrence of obstructive symptoms, aesthetic issues, and malignancy are among the cosmetic indications of multi-nodular cartilage (6). Khanzada et al. showed that high age, male sex and extensive thyroidectomy are associated with increased complications (5). Also, obstructive symptoms, aesthetic issues and malignancy and benign cytology are multidrug nodules (2). Thyroid cancer, on the other hand, is also common in cancers, and it accounts for thirty-five in human cancers (7). In case of thyroid cancer diagnosis, it is also a good surgical procedure (4). Complete thyroidectomy as an operation has always been used as a selective surgical procedure in patients (8). Thyroid cancer is also common in cancers, and it accounts for 35th in human cancers (9). Surgery is a good practice if cancer is diagnosed with high prevalence and fifty cases per million in the United States (10, 11). Totally, complete thyroidectomy was performed as an operation with a history of history as

an admission surgery. Patients are admitted to the hospital after surgery, due to the risk of life-threatening complications, including hypocalcemia and airways obstruction, or due to damage to the larynx or hematoma, but progress has been made in the area of anesthetic and surgical procedures. Which is somewhat less complicated (12, 13). After surgery, patients are at risk for life-threatening complications, including hypocalcemia and airway obstruction, or due to laryngeal damage or hematoma (5). Therefore, thyroid surgery is associated with two important complications. Hypoparathyroidism, recurrent laryngeal and hematoma damage, and the correction of surgical procedures in these patients has somewhat reduced these complications (2). In patients undergoing total thyroidectomy with malignant pathology, due to damage to the surrounding tissue, as well as the spread of involvement in the tissues surrounding the prevalence of hypocalcemia (8). Therefore postoperative hypocalcemia is known as one of the most common and most important complications after thyroidectomy. In fact, calcium is less than 8.5 mg / dl as hypocalcemia (3).

Studies have shown that hypocalcaemia is seen transiently in these patients, for example, Sokoutiet al. Showed that hypocalcaemia was seen transiently only in patients with total hypothyroid thromboembolism and none of the patients permanently had hypocalcemia (14) . But Fang et al showed that the rate of permanent hypocalcaemia was only observed in 3.9% of patients (15). Tile and colleagues also showed that hypocalcemia was much more common in patients with total thyroidectomy (6). In a study in 333 patients in Brazil, 40.8% had transient hypocalcemia and 4.2% had permanent hypocalcaemia (16). Therefore, according to different statistics on the incidence of hypocalcemia in various types of thyroid surgery, the researchers aimed to compare the hypocalcemia in patients undergoing thyroid cancer surgery and multi-nodular goiter.

## **METHOD**

This descriptive-analytic study was a retrospective study in which 180 patients underwent total thyroidectomy, which was the cause of this multi-nodular goiter or thyroid cancer. This study was conducted to investigate the patients referred to Shahid Beheshti Hospital in 2016 and 2017. Meanwhile, 86% of the patients were female with thyroidectomy. The cause of thyroidectomy was multiple nodular goiter and thyroid cancer. The cause of the action was based on the case, the description of the practice and the doctor's opinion, as well as the answer to the pathology

sample. In order to select the sample, all files of patients under complete thyroidectomy were selected and counted.

The mean age in patients was 50years. Calcium levels of calcium were recorded before the operation in the test plates. Also, postoperative calcium was also evaluated based on the postoperative test. The mean pre-operative calcium in the goiter group was  $9.02 \pm 26$  mg/dl and in the cancer group it was  $8.87 \pm 43$  mg/dl. The mean postoperative calcium in the goiter group was  $6.83 \pm 51$ mg/dl and in the cancer group it was  $6.92 \pm 11$  mg/dl. Regarding the normal distribution of the data, for statistical analysis of the hypocalcemia in two groups, independent t-test was used. The results of the data analysis indicated that the hypocalcemia level was not significant in both groups (P value: 0/120).

## DISCUSS

The aim of this study was to compare the incidence of hypocalcaemia in thyroidectomy with the cause of multiple nodular goiter and thyroid cancer. The first finding from the present study was that there was no significant difference in incidence of hypocalcemia in thyroidectomy due to MNG and thyroid carcinoma. Since surgery has been performed in a university hospital with a large number of patients and has been carried out by surgeons with sufficient surgical experience and skill, there is no significant difference in the incidence of hypocalcemia in thyroidectomy due to the multi-nodular goiter and thyroid cancer, as a result of this issue. And the results may be different in non-academic centers and centers with limited number of patients and possibly more limited experience of surgeons in thyroid surgery, which needs to be studied appropriately with these conditions.

Global Partners in 2014, In a study comparing the rate of relapse and complications after thyroidectomy total and subtotal in the surgical treatment of multinodular goiter, a significant difference in the effects of transient and permanent after surgery between the two groups is not, but relapse rate Subtotal thyroidectomy is significantly higher in the thyroidectomy and ultimately Total Thyroidectomy as a selective method for MNG goiter in university hospitals has surgeons with sufficient experience in this practice (1).

Cao et al., In a meta-analysis in 2014 that compares the efficacy and safety of total thyroidectomy with subtotal thyroidectomy for the treatment of multinodular goiter, suggests that total thyroidectomy is associated with less recurrence of nodule and a higher rate of transient

hypothyroidism, but There is no significant difference between total thyroidectomy and subtotal in the permanent paralysis of the laryngeal recurrent nerve and the level of permanent hypoparathyroidism, which largely corresponds to the results of the present study (2).

Agarwal in 2008, in a systematic review, showed that nodule recurrence was seen after subtotal thyroidectomy up to 50% of patients, but no significant difference was seen in the incidence of complications associated with total thyroidectomy and subtotal. Instead, transient hypocalcaemia was greater after total thyroidectomy. He recommends total thyroidectomy as a safe and effective method in multinodular goiters in the hands of experienced surgeons and introduces Total Thyroidectomy as a selective method for the treatment of benign multinodular goiter (3).

## CONCLUSION

The results of this study showed that there is no difference between the incidence of hypocalcemia in thyroidectomy and the cause of multinodular goiter and thyroid cancer.

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