



THE ROLE OF PERIOPERATIVE PARATHORMONE LEVEL AFTER TOTAL THYROIDECTOMY AS PREDICTOR OF HYPOCALCEMIA

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ABSTRACT **Aims and Objectives:** To assess the role of Parathormone level after Total thyroidectomy in predicting the complication of hypocalcemia and to correlate the serum Parathormone and corrected calcium level after Thyroidectomy. **Methods:** **Inclusion Criteria:** 1. Age between 20 years to 60 years, 2. Multinodular goitre, 3. Toxic nodular goitre, 4. Thyroid malignancies, 5. Patients willing to give consent for study. **Exclusion Criteria:** 1. Hemithyroidectomy, 2. Solitary nodular goitre, 3. Age <20yrs and >70yrs, 4. Preoperative parathyroid gland abnormality on USG, 5. Neck irradiation. **Conclusions:** Hypocalcemia following total thyroidectomy remains a significant cause of morbidity and increases the cost of procedure due to prolonged hospital stay. The use of serum PTH postoperatively 6hrs following total thyroidectomy significantly predict the complication of hypocalcemia, thereby administering calcium supplementation earlier even before the patient develop symptoms. Thus reducing the morbidity and prolonged hospital stay. The post thyroidectomy permanent hypoparathyroidism also depends on the type of surgery, histological diagnosis and hyperthyroidism. Proper identification of the parathyroid gland and preserving the gland with adequate vascularity significantly reduce the complication.

KEYWORDS :

INTRODUCTION:

Thyroidectomy is the most common endocrine surgery performed. Hypocalcemia is one of the serious-complication following Thyroidectomy, incidence varies from 20-30% occurs due to devascularisation or accidental removal of parathyroid gland. To manage postoperative hypocalcemia, most practitioners obtain serial serum calcium monitoring and respond appropriately to low levels. Recently, several studies have advocated measurement of the parathyroid hormone (PTH) level several hours after operation in order to predict the development of hypocalcemia.

AIM:

In this study we assess the role of Parathormone level after Total thyroidectomy in predicting the complication of hypocalcemia and to correlate the serum Parathormone and corrected calcium level after Thyroidectomy.

OBJECTIVES OF THE STUDY:

To assess the role of Parathormone level after Total thyroidectomy in predicting the complication of hypocalcemia.

To correlate the serum Parathormone and corrected calcium level after Thyroidectomy.

MATERIALS AND METHODS:

Detailed history elicited by direct interview with the patient regarding age, sex, symptoms and thorough clinical examination.

Pre operative investigations like thyroid function test, Ultrasound thyroid and FNAC to confirm the diagnosis of thyroid swelling.

Essential investigations like serum albumin, calcium levels and calculation of corrected calcium levels. Hyperthyroidism was controlled before surgery. Vocal cords function were assessed by indirect laryngoscopy prior to operation

Post operative investigations include Intact serum Parathormone, serum albumin, calcium levels and calculation of corrected calcium levels and histopathological examination of specimen of total thyroidectomy

Inclusion Criteria:

1. Age between 20 years to 60 years
2. Multinodular goitre
3. Toxic nodular goitre
4. Thyroid malignancies
5. Patients willing to give consent for study

Exclusion Criteria:

1. Hemithyroidectomy
2. Solitary nodular goitre
3. Age <20yrs and >70yrs
4. Preoperative parathyroid gland abnormality on USG.
5. Neck irradiation.

RESULTS:

1. Preoperative Thyroid Function Test:

	No. of patients	Percentage
EUTHYROID	42	87.5%
HYPERTHYROID	2	4%
HYPOTHYROID	4	8.5%

2. Preoperative Calcium Level:

CORRECTED CALCIUM	No. of patients	Percentage
Normocalcemia (9-11mg/dl)	30	62.5%
Mild Hypocalcemia (8.51- 8.99 mg/dl)	18	37.5%

3. Ultrasonography Of Thyroid Swelling:

MULTINODULAR GOITRE	No. of patients	Percentage
	24	50%
COLLOID GOITRE	14	29%
HASHIMOTO'S THYROIDITIS	8	17%
PAPILLARY CA.	2	4%

4. Post Operative Histopathopathology:

Pre op TFT	Risk category		Chi square	P value
	High risk	Low risk		
Normal	23	19	6.31	0.04
Hypothyroid	0	4		
Hyperthyroid	2	0		

5. Comparing Thyroid Function Test With Post Operative Hypocalcemia:

DIFFUSE THYROMEGALY	No. of patients	Percentage
	28	58.3%
MULTINODULAR GOITRE	16	33.4%
COMPLEX CYSTIC THYROMEGALY	4	8.3%

DISCUSSION:

This study estimated the incidence of hypocalcemia after total thyroidectomy was 47% compared to the incidence of hypocalcemia in the nationwide inpatient sample study which was found to be 9% only.

who underwent thyroidectomy with concomitant neck dissection were prone to develop hypocalcemia when compared to total thyroidectomy alone.

In our study, 2 cases diagnosed as papillary ca thyroid and proceeded with total thyroidectomy with neck dissection, both patients developed hypocalcemia post operatively.

We analyzed that hypothyroid patients are less likely associated with post operative hypocalcemia. Only 4% of hyperthyroid patients were operated in our study and they developed hypocalcemia.

Our study estimated the correlation between the preoperative serum calcium with post operative Hypocalcemia. Any low level in preop serum calcium level was significantly associated with hypocalcemia. The incidence of hypocalcaemia was higher in Nontoxic Nodular goiters due to accidental removal of the parathyroid gland was significantly associated with hypocalcaemia.

Our study correlated the serum parathormone with calcium level immediately after total thyroidectomy and estimated the role of PTH to identify hypocalcemia. Out of 48 patients, 47% developed hypocalcemic symptoms. There is a significant relationship between post operative PTH and hypoparathyroidism induced hypocalcemia. These patients were administered calcium supplementation.

In our study, Patients whose PTH is less than 10pg/ml were closely monitored and administer with calcium supplementation.

The patients who developed hypocalcemia had postoperative PTH level of less than 15 pg/mL after 6hrs of total thyroidectomy. This study also suggested that patients with 6hrs postoperative PTH level less than 10 pg/mL should undergo intensive inpatient postoperative monitoring to identify hypocalcemia and administer with calcium supplementation.

Patients undergoing total thyroidectomy postoperative PTH levels greater than 15 pg/mL after 6hrs are at extremely low risk for developing postoperative hypocalcemia and can be considered for early discharge from the hospital if they are otherwise stable.

CONCLUSIONS:

Hypocalcemia following total thyroidectomy remains a significant cause of morbidity and increases the cost of procedure due to prolonged hospital stay.

The use of serum PTH postoperatively 6hrs following total thyroidectomy significantly predict the complication of hypocalcemia, thereby administering calcium supplementation earlier even before the patient develop symptoms. Thus reducing the morbidity and prolonged hospital stay.

The post thyroidectomy permanent hypoparathyroidism also depends on the type of surgery, histological diagnosis and hyperthyroidism Proper identification of the parathyroid gland and preserving the gland with adequate vascularity significantly reduce the complication.