

# HYPOCALCEMIA FOLLOWING TOTAL THYROIDECTOMY FOR BENIGN GOITRE IN HEAD, NECK, ENDOCRINE SURGERY AT ALEXANDRIA MAIN UNIVERSITY HOSPITAL

**Ayman Sameh Nabawi, Tarek Youssef Koraitim, Walid Ebd-El Halim Mohamed Abdulhalim, Abdullahi Haji Aden**

**Department of Surgery, Faculty of Medicine, Alexandria University**

## INTRODUCTION

Thyroidectomy has a complication rate lower than 5%. Most frequently, postoperative hypocalcemia has been observed. the aim of the present study was to assess Hypocalcemia following total thyroidectomy for benign goiter in head, neck, endocrine surgery unit at Alexandria main university hospital. Post-thyroidectomy hypocalcaemia (PTHC) is a recognised postoperative complication with potential wide-ranging implications and healthcare costs. Hypocalcaemia can be asymptomatic; however, clinical manifestations such as paraesthesia and muscle spasms can be distressing for the patient, while persistent untreated hypocalcaemia can be life threatening.

Thyroid surgery (total or near total thyroidectomy) can lead to serious complications, including transient or permanent vocal cord palsy or severe bleeding. However, hypocalcemia is the most frequent complication after thyroid surgery.

Transient hypocalcemia frequently complicates postoperative care of patients who have undergone thyroid surgery. Post-thyroidectomy hypocalcemia arises because of parathyroid removal, devascularization and damage which induce a state of transient (or permanent) hypoparathyroidism. Additional mechanisms, such as vitamin D deficiency, an acute increase in calcitonin serum levels (because of gland handling during surgery) or an “hungry bone syndrome” are believed to contribute to this process.

## AIM OF THE WORK

The aim of this study was to assess incidence of hypocalcemia following total thyroidectomy for benign non recurrent goiter in Head, Neck and Endocrine surgery unit at Alexandria Main University Hospital for a period of 6 months duration which started January till December 2020 particularly on:

- 1- Identification of post-thyroidectomy Hypocalcemia interms of age and gender
- 2-Identification of presenting symptoms and signs of postoperative hypocalcemia.
- 3-Check postoperative serum calcium levels to diagnose post operative hypocalcemia.

## SUBJECTS AND METHODS

Sixty-nine patients were subjected to Thyroidectomy. T3 hormone, T4 hormone, thyroid-stimulating hormone (TSH), anti-thyroid peroxidase antibody (anti-TPO), and Anti TG, trab; diagnoses; surgical notes; histopathology reports; and postoperative 24-hour, 48-hour serum calcium levels were recorded and evaluated.

## RESULTS

The incidence of hypocalcemia was 36.2 % after 24 hours and 34.8 % after 48 hours. after 24 hours, hypocalcemia was manifested by 28.0 % Circum oral tingling and 16.0 % Carpopedal spasms while after 48 hours, hypocalcemia was manifested by 25% circumoral tingling and 12% by carpopedal spasms.

**Table 1:** Distribution of the studied cases according to post –operative calcium (n =69)

Calcium	No.	%
24 hours		
Hypocalcemia (<8.4)	25	36.2
Normal (8.4 – 10.2)	44	63.8
Min. – Max.	6.90 – 14.30	
Mean ± SD.	8.52 ± 0.91	
Median (IQR)	8.50 (8.10 – 8.80)	
48 hours		
Hypocalcemia (<8.4)	24	34.8
Normal (8.4 – 10.2)	45	65.2
Min. – Max.	6.90 – 10.0	
Mean ± SD.	8.44 ± 0.63	
Median (IQR)	8.50 (8.10 – 8.80)	

**Table 2:** Relation between post–operative calcium 24 hrs and different parameters (n = 50)

	Post-operative calcium 24 hrs				Test of sig.	p
	Hypocalcemia <8.4 (n = 25)		Normal (8.4 – 10.2) (n = 44)			
	No.	%	No.	%		
Gender						
Male	4	16.0	10	22.7	$\chi^2=0.446$	0.504
Female	21	84.0	34	77.3		
Age (years)						
Min. – Max.	20.0 – 70.0		23.0 – 74.0		t = 0.221	0.825
Mean ± SD.	49.08 ± 13.92		49.84 ± 13.60			
Median	48.0		51.0			
Type of complication						
No	14	56.0	44	100.0	$\chi^2=21.940$ *	<sup>MC</sup> p <0.001*
Circumoral tingling	7	28.0	0	0.0		
Carpopedal spasms	4	16.0	0	0.0		

$\chi^2$ : Chi square test      MC: Monte Carlo      t: Student t-test  
p: p value for comparing between the different categories  
\*: Statistically significant at  $p \leq 0.05$

## CONCLUSION

Multinodular goiter has higher incidence of post operative hypocalcaemia in comparison with other indications of thyroidectomy as per our results. This is partly explained by the fact that most multinodular goiters are huge and therefore during thyroidectomy there is likelihood of unintended damage to the parathyroid glands, is chaemia to the parathyroid glands or concucussion. therefore parathyroid gland being the regulator of Serum calcium,there is likelihood of low serum calcium levels. Serum calcium concentrations have been the basis of identification of post-operative hypocalcemia.