

## **FP 29 Meta-analysis and systematic review of the post-operative ionized calcium slope in predicting symptomatic hypocalcemia among post-thyroidectomy patients**

Ong, John Emmanuel L., MD <sup>1</sup>  
Almazan, Natividad A., MD MSc <sup>1,2</sup>  
Cruz, Emmanuel Tadeus S., MD <sup>1,3</sup>

<sup>1</sup> Department of Otorhinolaryngology – Head and Neck Surgery  
Manila Central University – Filemon D. Tanchoco Medical Foundation Hospital  
Caloocan City, Philippines

<sup>2</sup> Department of Otorhinolaryngology – Head and Neck Surgery  
East Avenue Medical Center  
Quezon City, Philippines

<sup>3</sup> Department of Otorhinolaryngology – Head and Neck Surgery  
Quezon City General Hospital  
Quezon City, Philippines

### **ABSTRACT**

**Objective:** This study aims to analyze the available evidence on the use of the Ionized Calcium slope as a predictor for developing symptomatic hypocalcemia among Post-Thyroidectomy patients by comparing the means of biochemically hypocalcemic patients who became symptomatic to those who did not.

**Background:** There is emerging evidence that the sudden and intensive decline in plasma calcium concentration, rather than the absolute value of the calcium taken post-operatively, is responsible for the symptoms of hypocalcemia among post-thyroidectomy patients. The rate of decline is represented as the Calcium (Ca) or Ionized Calcium (iCa) Slope: **Pre-operative Ca/iCa – Post-operative Ca/iCa.**

**Methods:** PubMed, MEDLINE, EMBASE, The Cochrane Library, HERDIN and Wiley Online Library were searched through January to June 2018 for Prospective and Retrospective studies relevant to Calcium Slope, Ionized Calcium Slope, Symptomatic Hypocalcemia and Thyroidectomy.

**Results:** Five studies containing a total of 354 patients were included in the analysis. The analysis of pooled data demonstrated that the mean decrease in Ionized Calcium was 0.08 mmol/L higher in the symptomatic group compared to the asymptomatic group under the random effects model. Under the fixed effects model, the mean was 0.09 mmol/L higher, with the results being statistically significant between groups.

**Conclusion:** Pooled results of the five studies suggest that the presence of a steeper drop from pre-operative ionized calcium levels was more likely associated in the development of hypocalcemic symptoms. The findings support the use of the Ionized Calcium slope as a method that can identify patients at risk for symptomatic hypocalcemia.

**Key Words:** *Ionized Calcium Slope, Symptomatic Hypocalcemia, Post Thyroidectomy*