



HYPOCALCAEMIA IN POSTOPERATIVE CASE OF THYROIDECTOMY-A CLINICAL STUDY

ENT

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ABSTRACT

BACKGROUND: Hypocalcaemia is one of the frequent complications in patients undergoing thyroid surgery. It increases patient's hospitalisation, cost and mortality. Knowing the risk factors of postoperative thyroidectomy hypocalcaemia allows early management, avoids complications and reduces treatment cost.

METHODS: A retrospective study done on patients underwent thyroid surgery on 15 patients (10 female and 5 male). Postoperative hypocalcaemia was defined as serum calcium levels lower than 8.0 mg/dl measured 24 hr after surgery. Following factors were evaluated in the study: sex, age, preoperative serum calcium levels, preoperative serum PTH levels, type of surgery performed (total thyroidectomy/hemithyroidectomy).

RESULTS: From the evaluated factors only gender and surgical procedure are considered to be significantly related to hypocalcaemia. Female patients experienced postoperative hypocalcaemia in 66.67% of cases which was significantly higher than male patients 33.33%. We also noticed a greater hypocalcaemia incidence in patient undergoing total thyroidectomy than in patient undergoing hemithyroidectomy.

CONCLUSION: The above findings suggest that sex(female) is a strong risk factor, surgical procedure are the only risk factors that cause postoperative thyroidectomy hypocalcaemia.

KEYWORDS

Hypocalcaemia, postoperative case, thyroidectomy

INTRODUCTION

Hypocalcaemia is one of the common biochemical abnormality ranging from mild to life-threatening crisis [1]. Hypocalcaemia caused by transient or definitive hypoparathyroidism was the most frequent complication after thyroidectomy, occurring in 63% of the cases [2]. It is a common practice to monitor patients for clinical signs or symptoms of hypocalcaemia and to assess both serum calcium and phosphorous levels. It has been reported that the rate of transient hypocalcaemia ranges from 6% to 30%, although there is <2% incidence of persistent dysfunction [3]. Hypocalcaemia often appears within 48hrs after thyroidectomy [4]. Symptoms are severe and required calcium replacement therapy. Serum calcium usually recovers within few months of treatment. However, in few patients' hypoparathyroidism persists after 1 yrs and may be considered permanent [5]. It is because parathyroid glands are de-vascularised, injured or dissected during the surgery [6]. Current research aimed to study the management of hypocalcaemia following thyroid surgery.

MATERIAL AND METHODS

This retrospective study was conducted in the department of ENT, Gauhati Medical College and Hospital, Guwahati, Assam. Informed consent and Institutional ethical committee approval were obtained. Data will be collected from patients undergoing thyroidectomies by thorough history taking, clinical examination, radiological, haematological investigations including serum calcium, albumin, phosphorous, magnesium, PTH levels and follow up of the cases will be done after surgery for postoperative hypocalcaemia.

1. Distribution Of Patients According To Sex

Female	10
Male	5
Total	15

2. Distribution of patients according to age

25-35	2
35-45	3
45-50	10
Total	15

3. Distribution Of Patients According To Indication Of Total Thyroidectomy

Malignancy	10
Toxic features	3
Swelling/Goitre	2
Total	15

4. Distribution Of Patients According To Postoperative Hypocalcaemia

No	10
Yes	5

RESULTS

In this study 15 patients undergone thyroidectomy. 10 female patients and 5 male patients were included (table 1). Highest number of patients underwent thyroidectomy were between 45-50 age (table 2). 2 patients with multinodular or colloid goitre, 3 patients with toxic features and 10 patients with follicular neoplasm underwent thyroid surgery (table 3). Post-operative hypocalcaemia was found in 5 patients undergone total thyroidectomy (table 4).

Management Of Hypocalcaemia

Out of 5 patients who developed hypocalcaemia, 2 patients required intravenous calcium gluconate (10 ml of 10% calcium gluconate diluted in 250ml of sodium chloride over 30 mins) where serum calcium level is found to be <2.00 mmol/l and severe symptoms.

Two 500mg chewable tablets of calcium carbonate three times a day and a single dose of 1 microgram of vitamin D were provided to 5 patients who developed hypocalcaemia.

DISCUSSION

All forms of thyroid diseases are much more frequently observed in women than men [7]. In this study it is seen that female contribute more to this disorder. The prevalence of postoperative hypocalcaemia following thyroidectomy which may be temporary or permanent ranges from 0% to 33.33%, with the highest incidence seen in patients underwent total thyroidectomy for cancer (66.67%) and in those who underwent hemithyroidectomy (13.33%) [8]. We found a transient decrease in serum calcium levels in all patients following thyroid surgery. However, only 33.33% of our patients required postoperative calcium supplementation. We also monitored inorganic phosphate and magnesium levels after thyroid surgery. We determined that this was important: if serum magnesium fall below normal, this could exert an unrecognized effect on serum calcium levels [9,12].

The etiology of transient hypocalcaemia after thyroidectomy is controversial. The most common cause was found to be injury to, or inadvertent removal of parathyroid tissue at the time of surgery [10,11]. Some have suggested that the hypocalcaemia is due to an abrupt postoperative skeletal uptake of calcium in patients with pre-existing thyrotoxic osteodystrophy-a phenomenon also known as "hungry bone syndrome" [12].

CONCLUSION

Post-thyroidectomy transient hypocalcaemia is a frequent complication. Female patients are more at risk. It can be prevented with preoperative preparation of patients with extreme caution and preoperative meticulous dissection, prompt identification of parathyroid gland and postoperative frequent monitoring of serum calcium and early treatment can prevent significant morbidity.

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