

Parathyroid Failure after Total Thyroidectomy: A Critical review

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Introduction

- Total thyroidectomy is commonly performed for malignancy, pressure symptoms and hyperthyroidism
- Hypocalcaemia following total thyroidectomy occurs in up to 23.5% of cases¹ – the most common complication
- Immediate post operative management has well established guidelines¹
- Lack of evidence at present about ongoing management of calcium levels

Aims and Methods

- Establish longer term guidance into the management of parathyroid failure
- Systematic review of literature regarding hypocalcaemia and parathyroid failure following total thyroidectomy

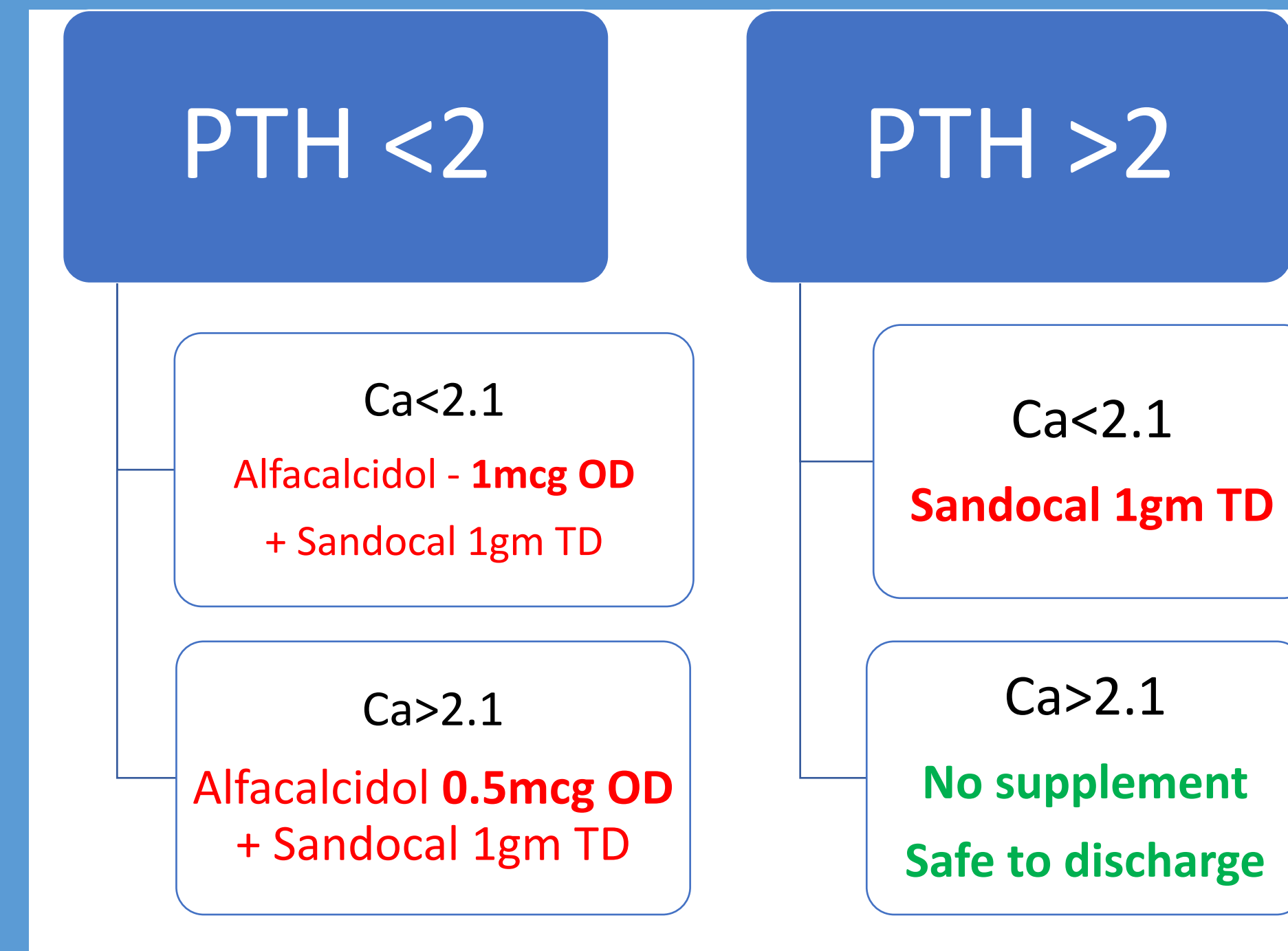
Definitions of Parathyroid Failure

- “Post-operative/early hypocalcaemia”
 - Immediate reduction in calcium levels in the first 24 hours following surgery
 - Calcium < 2.1mmol/L¹
- “Protracted/prolonged hypoparathyroidism”
 - Ongoing low parathyroid hormone levels, or the need for ongoing calcium supplementation at 1 month post operatively^{2,4}
- “Late/Permanent hypocalcaemia/hypoparathyroidism”
 - Continuing requirement of calcium +/- Vitamin D supplementation at 6 months following surgery^{1,3,5}
 - Regardless of parathyroid hormone level⁶

Post Thyroidectomy

Based on bloods taken 4 & 12hrs post surgery

Adapted from Australian Endocrine Surgeon Guidelines¹³



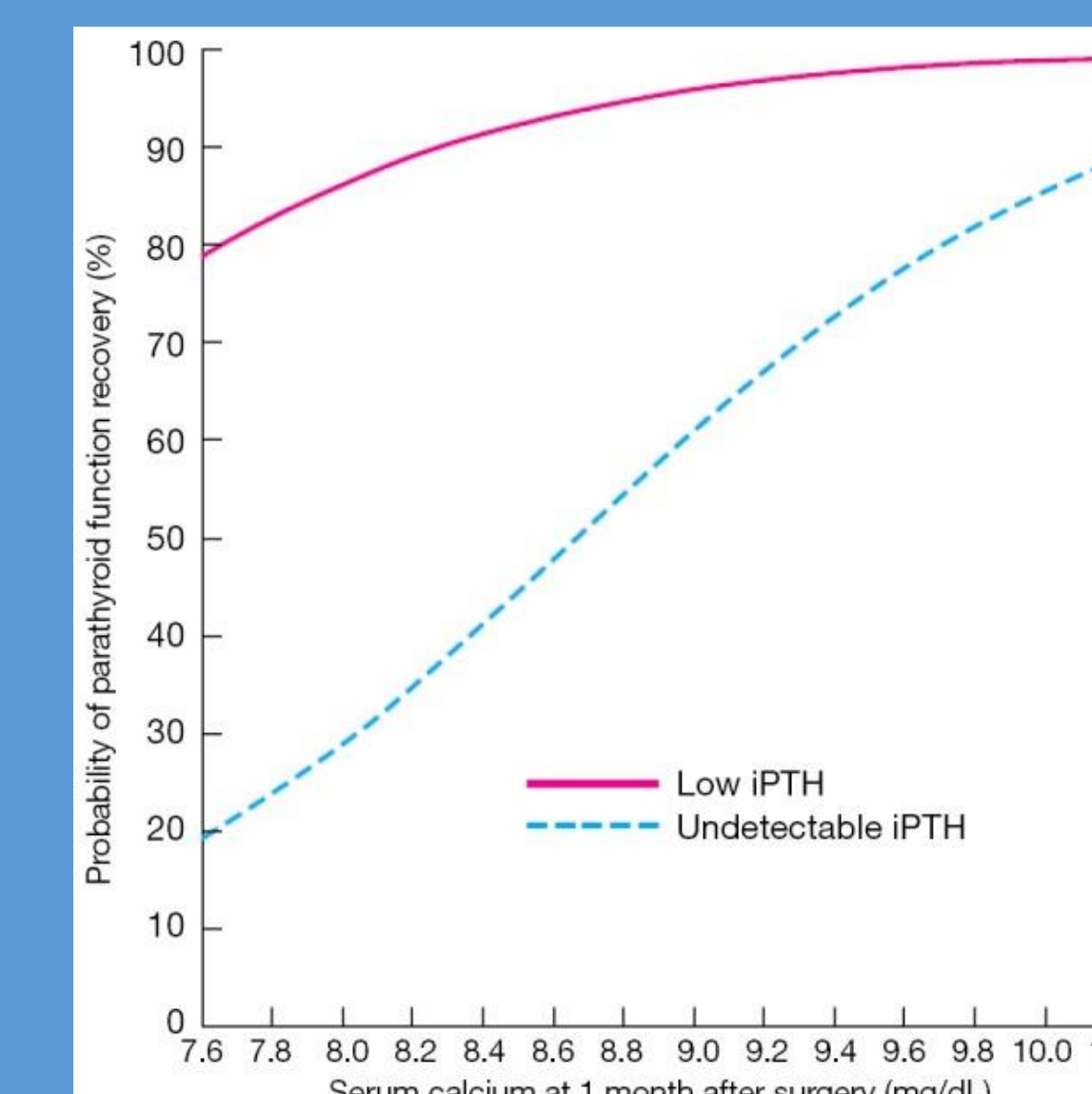
- All patients discharged on supplements are reviewed at 5 and 14 days with repeat blood tests
- Newly developed symptoms of hypocalcaemia need to attend emergency care

Biochemical prediction markers of hypoparathyroidism @ 24hrs post surgery

- PTH levels give best sensitivity - 97.7%
BUT
 - Poor specificity
- Low PTH is a poor predictor for hypocalcaemia¹²
- Calcium levels give best specificity - 96.1%¹²
- Combining these give good negative and positive predictive values¹²
- Corrected Calcium < 1.88mmol/L– **HIGH RISK**,
 - PTH >1.6pmol/L – **LOW RISK**₁₄

A Key moment – A Month After Surgery

- 2/3rds hypocalcaemia recovers by one month^{2,10,11}
- Medical management can be stopped
 - PTH to check
 - 75% chance of recovery even if still low²



From: Defining the syndromes of parathyroid failure after total thyroidectomy. Lorente-Poch et al.²

Risk factors for Parathyroid failure^{7,8,9}

- Lower age
- Female
- Graves’ disease
- Level VI neck dissection
- Intraoperative technique
 1. Failure to see gland
 2. Failure to preserve gland
 3. Poor handling of gland
 4. Compromised vascular supply

Conclusions

- Ensure post operative bloods taken
 - PTH with Calcium levels
 - 4 & 12 hours post operatively
- Good communication between surgeons and endocrine colleagues
- Developing a regional consensus for follow up
 - Managing hypocalcaemia
 - Calcium support
 - Withdrawal strategy

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