

Can routine Vitamin D replacement prior to surgery alter post-operative secondary hyperparathyroidism?

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Introduction

A persistently elevated parathyroid hormone (PTH) following parathyroidectomy is usually associated with Vitamin D deficiency.

We have previously demonstrated this to occur in >60% of post-operative patients.

Aims

To examine the effect of routine Vitamin D replacement pre-operatively on the proportion of patients with persistently elevated PTH post-operatively.

Data collection

Data was collated retrospectively from our parathyroid database. This included: patient demographics/ pre- and post-operative biochemistry/ operative data & Vitamin D treatment

Results

126 consecutive patients undergoing parathyroidectomy for sporadic primary hyperparathyroidism were examined. 88 patients (70%) were female.

Pre- and post-operative biochemical results are shown in Table 1.

Pre-operative ultrasound accurately localised 72% patients, & nuclear imaging accurately localised 64%. This allowed for 82 patients (65%) to undergo targeted (minimally invasive) parathyroidectomy. 116 patients (92%) had a single gland excised.

All patients received Vitamin D (cholecalciferol 1000-2000iu daily) at least 3 months prior to parathyroidectomy. There were no episodes of severe hypercalcaemia requiring expedited surgical intervention.

98% patients were rendered normocalcaemic following parathyroidectomy (failure rate 2%). Of these, 45 (36%) were found to be Vitamin D deficient. There were no episodes of prolonged hypocalcaemia post-operatively.

45% patients demonstrated a persistently raised PTH post-operatively despite successful surgery.

	Pre-operative	Post-operative
Median serum Ca ²⁺ (mmol/l) [range]	2.9 [2.6-4.0]	2.38 [2.15-2.76]
Median serum Vitamin D (nmol/l) [range]	30.6 [7.2-127]	60.4 [11.4-226]
Median PTH (pmol/l) [range]	13.1 [4.5-84.9]	3.25 [0.5-17.5]
Proportion [%] Vitamin D deficient (<50nmol/l)	79.5	44.8

Summary & Conclusions

A considerable proportion of patients with primary hyperparathyroidism demonstrate Vitamin D deficiency.

Routine Vitamin D replacement in deplete patients prior to parathyroidectomy results in a reduction in post-parathyroidectomy Vitamin D deficiency in patients with primary hyperparathyroidism.

This Vitamin D replacement carries no adverse consequences.

We have demonstrated a small reduction in secondary hyperparathyroidism following Vitamin D replacement, which is likely to relate to better bone health, now being explored.