



**Karolinska  
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**Institutionen för molekylär medicin och kirurgi**

# Primary hyperparathyroidism – comorbidity and outcome after parathyroid adenomectomy

**AKADEMISK AVHANDLING**

som för avläggande av medicine doktorexamen vid  
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av

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## **Abstract**

Primary hyperparathyroidism (pHPT) is associated with increased mortality in certain malignant tumours. Breast cancer is the most common and a shared aetiology has been suggested. In a register-based nested case-control study, we compared breast cancer in patients with and without a previous operation for pHPT. Neither tumour size or stage, nor lymph node metastases differed, nor did breast cancer specific survival.

Longer life expectancy and a lower threshold for referral of pHPT patients to surgery have led to an increasing proportion of elderly patients. In a large cohort study of the period 1961-2004, all-cause mortality within 30 days and one year after surgery for pHPT was analysed. The entire Swedish population, standardized for age, sex and time period, served as control. During the study period, 30-day mortality decreased from 4.2% to 0.4% and mean age increased by 11 years (53-64 years). Cardiovascular disease was the dominant cause of death in both sexes and all age groups.

Patients with pHPT have lower bone mineral density and display several risk factors of cardiovascular disease. Vitamin D deficiency is more common in pHPT and could aggravate the complications. In a randomized clinical trial, we examined the effect of vitamin D supplementation on bone mineral density, blood pressure and metabolic risk factors after curative surgery for pHPT. 150 patients were randomized to either calcium and vitamin D or calcium alone. Surgery had a positive effect on bone mineral density and insulin resistance and a small positive effect on systolic blood pressure. There was no obvious additive effect of vitamin D supplementation.

**Conclusions:** Breast cancer in pHPT patients seems to have the same characteristics and prognosis as in the general population. Parathyroidectomy is a safe operation, even in the elderly, and leads to improvements in bone mineral density, insulin resistance and to a lesser extent in systolic blood pressure. Vitamin D supplementation after surgical cure had no obvious beneficial effect.