

## The efficacy of surgical parathyroidectomy assessed using Australian administrative pharmaceutical data and quasi-experimental design

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### Background

Administrative data base research may have a role in surgical quality outcome evaluation. Such data provide independent and epidemiological perspectives of surgical performance that may differ from the results generated by the surgical units themselves. This may be of significance in decisions concerning health resource allocation, the appraisal of procedures and identification of specialised units. Primary hypoparathyroidism is recognised as associated with several chronic conditions and parathyroidectomy is an established surgical treatment.

### Objectives

This study examines the scope of a linked Australian pharmaceutical database to assess patient outcomes following parathyroidectomy for primary hypoparathyroidism using therapeutic profiles and chronic conditions defined by proxy.

### Methods

The prevalence of a range of chronic conditions were identified within a surgical cohort (age>50, N=610) using allocated World Health Organization Anatomical-Therapeutic codes.

An observational study with quasi experimental design was employed to track the pre and post-operative prevalence trends of chronic diseases and treatment groupings. Treatment efficacy was assessed by regression discontinuity after surgery and mortality estimated by proxy using service discontinuation.

### Findings

Parathyroidectomy had significant beneficial effects upon the prevalence of bodily and bone pain, treatments for cardiovascular disorders and infective episodes. In contrast, dyslipidaemias, psychosis, depression, glaucoma and obstructive airways diseases showed no evidence of regression discontinuity. Four year survival was 89%.

### Conclusions

The Australian data employed can define chronic conditions and track pre and post-operative prevalence trends to provide an alternative perspective for assessment of surgical treatment. This method has the potential for the evaluation of infrequently performed procedures and may reduce reporting biases and provide new insights into surgical practice.

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