

Estimates of mortality rates in people with diabetes and cardiovascular disease using administrative pharmaceutical data

Purkiss, S^{1*}, Keegel, T¹, Vally, H¹, and Wollersheim, D¹

¹La Trobe University, Melbourne

Background

Quantifying the mortality risk for people with diabetes is challenging because of associated comorbidities. The recording of cause specific mortality from accompanying cardiovascular disease in death certificate notifications has been considered to underestimate the overall mortality risk in persons with diabetes.

Main aim

Develop a technique to quantify mortality risk from pharmaceutical administrative data and apply it to persons diagnosed with diabetes, and associated cardiovascular disease and dyslipidaemia before death.

Methods

Persons with diabetes, cardiovascular disease and dyslipidaemia were identified in a publicly available Australian Pharmaceutical data set using World Health Organization anatomic therapeutic codes assigned to medications received. Diabetes associated multi-morbidity cohorts were constructed and a proxy mortality (PM) event determined from medication and service discontinuation. Estimates of mortality rates were calculated from 2004 for 10 years and compared persons with diabetes alone and associated cardiovascular disease and dyslipidemia.

Results

This study identified 346,201 individuals within the 2004 calendar year as having received treatments for diabetes (n=51,422), dyslipidaemia (n=169,323) and cardiovascular disease including hypertension (n=280,105). Follow up was 3.3 × 10⁶ person-years. Overall crude PM was 26.1 per 1000 person-years. PM rates were highest in persons with cardiovascular disease and diabetes in combination (47.5 per 100 person years). Statin treatments significantly improved the

mortality rates in all persons with diabetes and cardiovascular disease alone and in combination over age groups >44 years (p<.001). Age specific diabetes PM rates using pharmaceutical data correlated well with Australian data from the National Diabetes Service Scheme (r=0.82)

Conclusion

Proxy mortality events calculated from medication discontinuation in persons with chronic conditions can provide an alternative method to estimate disease mortality rates. The technique also allows the assessment of mortality risk in persons with chronic disease multi-morbidity.

*Corresponding Author:

Email Address: purkiss@googlemail.com (S Purkiss)

