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Incidence of drug-treated chronic diseases using administrative pharmaceutical data

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Background

Pharmaceutical data can be used to identify the presence of drug-treated chronic diseases (CD) in individuals using assigned World Health Organization Anatomic Therapeutic Chemical (ATC) classifications of medicines prescribed. ATC codes define treatment domains and provides a method to case define CD that has previously been used to estimate CD prevalence within populations.

Main aim

We determined selected CD incidence from an administrative pharmaceutical dataset, and compared them with published CD incidence results.

Approach

An Australian Pharmaceutical Benefits Scheme (PBS) database covering the period 2003-14 was used for this study. The earliest prescriptions exchanged by individuals for an ATC defined CD were identified and the annual count recorded. These values were combined with Australian population census data to calculate the annual incidence of ATC defined CD. Australian PBS derived incidence estimates (PDI) were compared with published Australian and world incidence data.

Results

The PDI of 16 chronic diseases were compared with incidence estimates using self-report surveys from the literature. Mean percentage differences between PDI estimates varied greatly when compared to survey data (mean 33% (SD $\pm 79\%$). Diabetes (-29%), gout (4%), glaucoma (69%) and tuberculosis (14%) showed closer associations. In contrast, PDI estimates (n/1000/year) showed particularly high incidence levels as compared with self-report data for dyspepsia (16.9 v 4.5), dyslipidaemia (11.6 v 5.6) and respiratory illness (17.6 v 2.6).

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Conclusion

Incidence estimates of drug treated chronic disease can be obtained using pharmaceutical data and may be a useful source for a number of conditions. Some PDI differ considerably from survey data. The interpretation of PDI requires context on how a particular CD presents. Accuracy and relevance are likely to depend upon how drug treatments relate to the initial management of the chronic disease.