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Measuring medication adherence: standardized definitions are needed to allow for comparisons

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Background

Though pharmacy claims data are commonly used to study medication adherence, there remains no standard operational definition for adherence especially for patients on multiple medications. Even when studies use the same terminology, the actual methods of calculating adherence can differ drastically. It is unclear whether the use of different definitions results in different conclusions regarding adherence and associated outcomes. The objective of our study was to compare adherence rates and associations with mortality using different operational definitions of adherence, and using various methods of handling concurrent medication use.

Approach

We conducted a cohort study of patients aged $\geq$65 years from Manitoba, Canada, with incident hypertension diagnosed in 2004 and followed to 2009. We calculated adherence rates to antihypertensive medications using different operational definitions of medication adherence (including interval and prescription based medication possession ratios [MPR] and proportion of days covered [PDC]). For those on concurrent medications, we calculated adherence rates using the different methods of handling concurrent medication use, for each definition. We used logistic regression to determine the association between adherence and mortality for each operational definition.

Results

Among 2199 patients, 24.1% to 90.5% and 71.2% to 92.7% were considered adherent when using fixed interval and prescription-based interval medication possession ratios [MPRi and MPRp] respectively, depending on how concurrent medications were handled. Adherence was inversely associated with death, with the strongest association for MPRp measures. This association was significant only when considering adherence to any hypertensive [aOR 0.70, 95% CI 0.51, 0.97], or when the mean of the class-specific MPRp's [adjusted OR 0.71, 95% CI 0.53, 0.95] was used. No significant association existed when the highest or lowest class-specific MPRp was used as the adherence estimate.

Conclusion

The range of adherence estimates varies widely depending on the operational definition used. Given less variation in adherence rates and their stronger association against mortality, we recommend using prescription-based MPR's to define medication adherence.

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