TITLE

A multi-database, multinational validation study of cardiovascular death, venous thromboembolic events and gastrointestinal diseases in the EU-ADR Alliance

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OBJECTIVES

In the context of a multi-national drug safety study, we aimed to validate code list/s and/or algorithms for the identification of venous thromboembolic events (VTE), cardiovascular death (CVDeath) and gastrointestinal disease (GID) in 4 European primary care databases within the EU-ADR Alliance.

METHODS

A random sample of potential cases was selected within a cohort of incident users of Strontium Ranelate or oral bisphosphonate/s in the following data sources: 1.Health Search Database-HSD (Italy), 2.Integrated Primary Care Information Database-IPCI (Netherlands), 3.Sistema d'Informació pel Desenvolupament de l'Investigació en Atenció Primària-SIDIAP (Spain), and 4.The Health Improvement Network-THIN (UK).

VTE and GID were identified using pre-specified code lists; CVDeath was ascertained combining death date with a code for cardiovascular event/s in primary care records in the previous 2 months.

Validation methods included free text review, hospital inpatient linkage, and GP questionnaires. Positive predictive values (PPV) were calculated as proportion of true cases amongst potential cases.

RESULTS

A total of 1,197 VTE, 921 CVDeath, and 2,887 GI diagnoses underwent validation. PPVs of VTE were 86%, 78% and 78% in HSD, THIN and SIDIAP respectively, and lower (66%) in IPCI. The proposed CVDeath algorithm showed a low PPV of 38%, 46%, 53% in IPCI, HSD, and SIDIAP, and a higher PPV of 78% in THIN. Finally, GID showed good validity in all databases, with PPV 91%, 78%, 91% and 89% in IPCI, HSD, THIN and SIDIAP, respectively.

CONCLUSIONS

The proposed code lists provided good validity (PPV>75%) for VTE and GID in most cases, with the exception of VTE in IPCI. In contrast, the proposed algorithm for CVDeath had poor performance, with lower PPV in all except THIN-UK. Whilst VTE and GID are accurately identified using diagnostic codes, the ascertainment of CVDeath does require linkage (e.g. to mortality register/s) and/or individual free text validation of events.