

Prevalence of potential drug-drug interactions (DDIs) in elderly poly-treated patients: results from data mining of prescription administrative archives

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Background. Elderly patients are the population at highest risk of potential drug–drug interactions (DDIs) because of their high exposure to polypharmacy. Around 1/3 of hospital admissions in this population is due to DDIs, which also represent the 5th cause of death among inpatients. The awareness of the most common potential DDIs can help health care professionals to recognize them and reduce their occurrence.

Aim. To estimate the prevalence of potentially severe and modifiable drug–drug interactions (DDIs) among elderly patients in polypharmacy.

Methods. We analysed all prescriptions dispensed during the 1st semester of 2011 to patients aged ≥ 65 registered under 7 Local Health Authorities of Emilia Romagna Region (covering a population of 3.4 million of inhabitants). Elderly who received at least 5 co-administered prescriptions of chronic drugs were selected to assess the presence of DDIs. A list of 53 DDIs were previously selected on the basis of the following parameters: (a) clinically important DDIs; (b) DDIs involving drugs reimbursed by the Italian National health Service, (c) DDIs including at least one chronic agent; (d) modifiable DDIs (i.e. alternative therapeutic strategies are available). DDIs were organised into 9 groups, on the basis of the interacting chronic agent: drugs for cardiac disorders, antihypertensives, statins, antidiabetics, antithrombotics, antiepileptics, antidepressants, immunosuppressants, others. For each DDI, prevalence and the relevant 95% confidence interval (95CI) were expressed as percentage of patients with the potential DDI on the whole cohort of elderly receiving polypharmacy.

Results. A cohort of 115,524 elderly (77.7 mean age) receiving polypharmacy was selected, representing 15% of the inhabitants ≥ 65 . Among the prescriptions of these subjects, 178,644 potential DDIs were identified. The most commonly DDIs belonged to the following chronic drug classes: antihypertensives (38% of overall DDIs), antithrombotics (18%, especially warfarin), antidiabetics (18%), antidepressants (10%). DDIs with a prevalence $>10\%$ among elderly in polypharmacy were the following: ACE inhibitors or sartans + NSAIDs (Prevalence: 19.7%; 95CI: 19.4-20.0), antidiabetics + beta-blockers (17.5%; 17.3-17.8), diuretics + NSAIDs (17.2%; 17.0-17.5), SSRIs + NSAIDs or ASA (13.5, 13.3-13.8). Triple whammy (ACE inhibitors + diuretics + NSAIDs) was found in 8.5% (95CI: 8.3-8.7) of patients.

Conclusion. A substantial number of clinically important potential DDIs were identified. Among modifiable drug treatments, NSAIDs represent the most frequent precipitant class. Also fluoroquinolones and macrolides were frequently prescribed as potential DDIs. Alternative antimicrobial treatments should be prescribed in patients with polypharmacy. Interventions to increase the awareness on the most prevalent potential DDIs could help practitioners in preventing concomitant use of dangerous polypharmacy.