

ANALYSIS OF DRUG-DRUG INTERACTIONS BASED ON ADMINISTRATIVE EMILIA ROMAGNA HEALTHCARE DATABASES

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Introduction: Drug-drug interactions may increase the risk of adverse events, especially in the elderly, given the many comorbidities and impaired responses to drugs due to physiological changes of this population. This analysis is a part of a pharmacovigilance project financed by the Italian Medicines Agency (Agenzia Italiana del Farmaco - AIFA) and the Emilia Romagna Regional Health Authority. Its purpose is to assess the prevalence of identifiable, widespread drug-drug interactions with clinical relevance between different Local Health Authorities (LHAs) of Emilia Romagna. This project includes two phases: pre-intervention analysis, considered here, and post-intervention analysis (still to be completed), which will experience the benefits brought about by training and awareness-raising meetings for healthcare staff.

Methods: Seventy-three pairs of interacting drugs with potential side effects were selected: based on the analysis of the evidence in the literature, the reimbursement paid by the National Health Service (NHS) and the availability of therapeutic alternatives. Data on drug use in over 65-years-old people were extracted from the archive of reimbursed prescriptions in 9 LHAs of Emilia Romagna in the period 1 January-30 June 2017. The presence of any potential interaction in the single patient was defined when at least one drug of the pair reached at least 90 DDD (Defined-Daily-Dose) in the semester under investigation (chronic use).

Results: The total cohort included 834,707 patients living in the participating LHA. The 18.4% of this population took more than 5 chronic drugs and 0.7% more than 10. The most widespread interaction was ACE-inhibitors-NSAIDs (63,987 patients, 7.7%) and in the second place there was the antidiabetic-beta adrenoceptor blockers interaction (20,661 patients, 2.5%). It was also very frequent the interaction between alpha antagonists (G04CA), used in benign prostatic hypertrophy, and calcium antagonists (13,555 patients, 1.6%). Also SSRI-ASA and SSRI-NSAID were very frequent interactions (2.5% and 1.3%, respectively), but with a high variability among LHAs (SSRI-NSAID: 1.7% - 3%). High variability was also found in the fluoroquinolones-antidiabetics pair (ranging from 0.8 to 1.4%). About the New Oral Anticoagulants (NOACs), the most frequent interaction was between dabigatran and simvastatin (285 patients).

Discussion and conclusions: Our analysis shows that polytherapy is very frequent in the Elderly, with a consequent increased risk of clinically important interactions. The high frequency of ACE-inhibitors-NSAIDs and antidiabetics-beta adrenoceptor blockers interactions is in line with the literature. In the first case, many studies confirm its clinical relevance recommending alternative analgesic therapies. The second interaction is perceived as less relevant: GPs consider this an unavoidable co-medication, without actual clinical side effects. With the aim to limit the prevalence of interactions, each Local Health Authority (LHA) presented to their own prescribers the analysis comparing data of each LHAs on each interaction. This allowed to focus efforts on drug-drug pairs for which the values are higher compared to other LHAs. Next analyses will determine whether this project has actually brought about improvement in appropriateness of drug use in the Elderly.