POLYPHARMACY AND DRUG-DRUG INTERACTIONS AT THE TIME OF ADMISSION TO AND DISCHARGE FROM A CARDIAC REHABILITATION WARD

Giuseppe Simeone[1], Chiara Resnati[1], Francesco Giallauria[2], Michele Arcopinto[2], Maddalena Illario[3], Antonello Cittadini[2], Mauro Cataldi[1]

[1]Department of Neuroscience, Reproductive and Odontostomatological Sciences, School of Medicine, Federico II University, Naples - Italy, [2]Department of Translational Medical Sciences, Division of Internal Medicine, Metabolic and Cardiac Rehabilitation Unit, Federico II University, Naples - Italy, [3]Regional Council of Campania, UOD 50.04.14Promotion and Enhancement of "Health's Innovation" programs, Naples - Italy

Introduction: Although often necessary in patients with chronic diseases, polypharmacy, i.e. the use of 5or more drugs, has important negative consequences on the quality and safety of therapy being among the most important determinants of poor medication adherence and increasing the risk of drug-drug interactions (DDIs) and drug toxicities. Drug therapy is often modified at the time of medication reconciliation when patients are admitted to the hospital in a way that is presumably substantially different in wards of different medical specialties. With the aim of gatering specific information about the impact of hospital admission on polypharmacy in patients affected with chronic cardiovascular diseases, we performed a systematic analysis of drug therapy at the time of admission and of discharge from the Cardiac Rehabilitation ward of the Federico II University Hospital. This investigation is part of a pilot study named FRIENDD (Farmaci Rivisti Insieme: Empowerment Nelle Diverse Discipline), carried out at the Federico II University Hospital to the evaluate the impact of hospital admission on polypharmacy.

Methods: The medical records of 653patients admitted to the Cardiac Rehabilitation ward of the Federico II University Hospital from 2012to 2016were retrospectively reviewed. For each patient the drug therapy taken at home before the admission was compared with that recommended at the discharge looking for changes in the number of prescribed drugs and whether these changes corresponded to the removal or introduction of drugs belonging to specific drug classes. In addition differences in the potential for drug interactions were also evaluated. Potential DDIs were identified and scored as serious, moderate and minor by using the DDIs checker made freely available by Medscape at the web page https://reference.medscape.com/drug-interactionchecker. Data are reported as median and interquartile range (IQR). Statistical analysis was performed with the c^2test using the SPSS 20 software and setting the threshold for significance at $p<0.05$.

Results: 93% of the patients was affected with 2or more diseases and the number of diseases per patient in the discharge report was 5.0 [3.8-8.0]. The diseases most frequently observed were arterial hypertension (59.9%), dyslipidemia (35.1%), carotid atherosclerosis (33.2%), type II diabetes (30.2%) and post-ischemic heart failure (27.3%). In the whole population, the average number (95% CI) of drugs at hospital admission and discharge was 5[3-8] and 6[4-9] respectively, and this difference was statistically significant. The percentage of patients on polypharmacy was similar at admission and at discharge (58.5vs 62.5%). A significantly higher prevalence of polypharmacy was observed in older adults both at admission (75.8%) and at discharge (81.7%). The drug classes most commonly prescribed didn't differ at admission and discharge and included proton pump inhibitors (8.3% and 8.7% respectively), β-blockers (8.1% and 7.3% respectively), statins (6.6% and 7.1% respectively) and aspirin (6.4% and 6.0% respectively). The number of potential DDIs per patient was significantly higher at discharge than at admission (5[1-11] vs 4[0-9], $p<0.01$) and, at both time points, in elderly than in young patients (admission: 6[2-11.75] vs 2[0-7] vs $p<0.01$; discharge: 7[3-13] vs 3[0-8] $p<0.01$). However, the relative prevalence of serious, moderate and minor DDIs did not differ in admission and discharge therapies.

Conclusion: Additional drugs are commonly introduced in therapies during hospitalization. A special care should be devoted in choosing the less interacting drugs in order to minimize the risk of potentially serious new DDIs. A dedicated medication review by clinical pharmacologists can be an useful tool in this setting.