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Improving the Appropriateness of Prescribing Medicine in the Elderly: A Comprehensive Approach in the Local Health Unit of Parma, Italy

Treating elderly patients can be complex because they often suffer from multiple illnesses. In addition, they are more likely than any other age group to use medications, which places them more at risk of potentially inappropriate prescribing (PIP). On average the elderly consume three times as many medications as the non-elderly and use 2 to 6 prescribed medications simultaneously.[1] Selecting the right medication or combination of medications for elderly patients can be challenging; age-related physiological changes and co-morbidities that often modify medication metabolism patterns and pharmacological activity can place the elderly at significant risk for medication-related issues; such as adverse drug events and prescribing errors (i.e. contraindications, excessive or duplicative medication therapy, and unrecognized interactions). Inappropriate medication prescribing has been associated with an increase in outpatient visits, hospitalization rates, and the risk of death.[2]

Approximately 95% of the elderly in Italy receive at least one prescription per year. Recent evidence suggests that in Emilia-Romagna, a large northern Italian region of about 4.2 million inhabitants, approximately one out of five elderly patients is exposed to inappropriate prescribing in an outpatient setting.[3] Since the end of 2006, researchers at Thomas Jefferson University, in collaboration with the Healthcare and Social Agency of the Emilia-Romagna Region and the Local Health Unit (LHU) of Parma, have been working on a project in the Parma LHU to improve the appropriateness of prescribing for elderly patients (≥ 65 years) in the primary care setting. The Parma LHU provides outpatient health services via about 300 primary care physicians to a population of approximately 400,000 residents.

This ongoing quality improvement initiative involves several intertwined phases. In the first phase, in order to establish baseline prevalence of inappropriate prescribing in the LHU elderly population, a panel of experts was convened to develop a set of explicit criteria on medications deemed inappropriate for older patients according to the Italian pharmaceutical market and Italian physician attitudes. The Beers criteria, widely reported in the literature, was used as a framework. The most recent set of Beers criteria, developed in 2002, defines a list of medications or medication classes that should generally be avoided in the elderly or when a specific underlying disease or condition exists.[4] After refining the Beers criteria to fit the Italian health care environment, the expert panel identified a total of 23 inappropriate medications and classified them as *always inappropriate (17)*, *rarely appropriate (3)*, and *with some indications but potentially misused* (3).

A retrospective cohort study was conducted using the medication list and the 2006 Parma LHU automated outpatient prescription data. The study revealed that of the 91,471 elderly patients, 23,662 (25.8%) received at least one prescription for any potentially inappropriate drugs. More importantly, 14,018 elderly (15.2%) were found to receive prescriptions for medications identified as *always inappropriate*. The most common inappropriate prescriptions were non-steroidal anti-inflammatory drugs, doxazosine (a-blocker), ticlopidine (antithromobotic), and amiodarone (antiarrythmic).

In the second phase, at the end of 2007, the Parma LHU convened all primary care physicians for a series of educational sessions. The physicians were introduced to the prevalence of inappropriate prescribing in the LHU with the intention of increasing the awareness of the importance of the issue. A 21-item survey looking at the knowledge and confidence in prescribing for the elderly was also administered to the physicians. Knowledge was assessed via 7 clinical vignettes based on some of the drugs considered inappropriate for the elderly as per the list previously described. The results of the survey showed that while the majority of physicians felt confident in prescribing for the elderly, knowledge of prescribing was found inadequate.[5] These findings reinforced the need for educational activities and materials for primary care physicians.

In the third phase, in late 2008, a list of alternative drugs to those judged inappropriate was developed by the expert panel. This list was the main topic of another educational session for primary care physicians held in the Parma LHU, in hopes of increasing awareness and minimizing inappropriateness in prescribing for the elderly. In 2009 local clinical leaders were recruited by the Parma LHU to present to the primary care physicians case studies on the most common inappropriate medications, in an attempt to generate interest and discussion on the topic.

An evaluation of the quality improvement initiatives is ongoing. A preliminary trend analysis compared the pre-post intervention (2006-2008) of the prevalence of inappropriate prescribing found a significant decrease from 15.2% in 2006 to 12.3% in 2008 of the elderly exposed to "always inappropriate" medications. This finding would suggest that the educational sessions may have positively affected physicians' attitudes towards improving their prescribing habits for elderly patients.

Although this finding is very promising the analysis did not include an LHU as a comparator. As soon as more recent data becomes available we will conduct a more robust study to corroborate such findings. Nevertheless, an important objective has been achieved; the project has improved communication among physicians by peer-to-peer discussion on the appropriate pharmacological treatment in the elderly. ■

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REFERENCES

1. Chin MH, Wang LC, Jin L, et al. Appropriateness of medication selection for older persons in an urban academic emergency department. *Acad Emerg Med.* 1999; 6(12):1232-41.
2. Fillenbaum GG, Hanlon JT, Landerman LR, et al. Impact of inappropriate drug use on health services utilization among representative older community-dwelling residents. *Am J Geriatr Pharmacother.* 2004; 2(2):92-101.
3. Maio V, Yuen EJ, Novielli K, Smith KD, Louis DZ. Potentially inappropriate medication prescribing for elderly outpatients in Emilia Romagna, Italy: A population-based cohort study. *Drugs Aging.* 2006; 23(11):915-924.
4. Fick DM, Cooper JW, Wade WE, Waller JL, Maclean JR, Beers MH. Updating the beers criteria for potentially inappropriate medication use in older adults: Results of a US consensus panel of experts. *Arch Intern Med.* 2003; 163(22):2716-2724.
5. Maio V, Abouzaid S, Negri GD. Physician knowledge and confidence in appropriate medication prescribing in the elderly: A survey study in Parma, Italy. *14th Annual Meeting of the International Society Pharmacoeconomics and Outcomes Research*. May 19, 2009, Orlando, USA.