CORRESPONDENCE

Potentially Inappropriate Medications in the Elderly: The PRISCUS List

by Stefanie Holt, Dr. med. Sven Schmiedl, Prof. Dr. med. Petra A. Thürmann
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Computerized Physician Order System (CPOE)

The PRISCUS list is a valuable tool for identifying potentially inadequate medication in elderly patients (1). To what extent are medications from this list being prescribed in a university-based hospital?

At Freiburg University Medical Center, a computerized physician order entry system (MEONA) has been in use since early 2008 (2). To increase medication safety, drug prescriptions are checked for several aspects (including allergies, interactions, dosages, contraindications). Up to now, 9656 patients aged 65 or older have been treated using this system. 186 419 oral medications were prescribed to these patients.

We analyzed these prescriptions using the PRISCUS list in its published form and noted that 8,836 prescriptions (4.7%) were for drugs that are categorized in the list as potentially inadequate for older patients. These prescriptions included in particular preparations containing lorazepam >0.5 mg/d (1861 prescriptions), lorazepam (957), and acetyldigoxin (334). In 43%, medications from the PRISCUS list were used (in 4169 patients).

In conclusion, an academic hospital actually does prescribe substances included in the PRISCUS list for elderly patients; this is especially the case for the benzodiazepines. Lorazepam was mainly administered around interventions and in adequate dosages, whereas lorazepam was given as a regular sleeping aid at a dose of 1 to 2 mg/d, which is too high for elderly patients.

No information is currently available on the actual tolerability of the preparations. The electronic prescribing system was adapted in such a way that an alert is issued immediately if any attempt is made to prescribe a drug from the PRISCUS list to an elderly patient; further, the system suggests alternative medications. We will report back to which extent this intervention influences prescribing behavior in potentially inadequate medication in elderly patients.

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Conflict of interest statement

The authors are employed by Meona GmbH.

Definition of Age

The PRISCUS list lacks a vital piece of information. The issue under discussion is inappropriate medications for elderly patients, but age is specified neither in terms of years nor in terms of a clinically more adequate characterization. This means that the dilemma of imprecise definition persists. The definition of age has been the subject of academic discussion for years and urgently requires clarification and agreement.

Further, the PRISCUS list suggests risperidone as a therapeutic alternative to neuroleptic drugs in patients with dementia. However, risperidone has not been recommended for this group of patients since 2005, and the summary of product characteristics makes this explicit. A meta-analysis of the licensing authorities has shown a trend towards higher mortality in older dementia patients (risperidone 4.0%, placebo 3.1%) (1). Even though the use of risperidone may be a therapeutic option in view of the limited alternatives, it has to be borne in mind that the pharmaceutical company with its product information rules out its own liability.

Nonetheless, the development and publication of the PRISCUS list means an important step towards improved pharmacotherapy of elderly patients. A useful addition to the PRISCUS list is the list of suitable medications published by Stefanacci (2).

As a next step, a prospective evaluation should be planned to find out whether intake of the PRISCUS preparations is really associated with a higher rate of problems. The medium term goal is to implement the elements from the PRISCUS list that have received a positive evaluation into the national disease management guidelines and into doctors' prescribing software.

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Pain Therapy

The PRISCUS list was set out on the basis of international examples of similar lists that were checked and added to by selected experts from the German speaking countries. For the topic of pain management, the list requires several corrections. The following is a selection of these.

- The association of pethidine with an increased risk of fractures is likely to be based on a misunderstanding from an epidemiological study from Denmark (1). The authors actually describe an increased risk of fractures in patients taking codeine, fentanyl, morphine, methadone, oxycodone, and tramadol; this effect was not confirmed for buprenorphine, pethidine, and a combination of ASA with codeine.
- In pain therapy, anticonvulsants and antidepressants are used in low dosages, on the basis of many clinical studies. This indication was not taken into consideration in the article.
- The association of etoricoxib with an increased risk of heart failure comes from a post hoc analysis of the MEDAL study (2). In their analysis, the authors found an increased risk compared with diclofenac in elderly patients only for the high dosage of 90 mg/d. This association has not been shown for the usual dosage of 60 mg/d. Rather, Fosbøl et al. assessed the risk of diclofenac and coxibs as the same (3).

From a pain therapeutic point of view, we therefore have grave objections to the undifferentiated adoption of the recommendations from the PRISCUS list. We recommend using this list only with the note that the recommendations do not apply to patients with an indication for pain therapy.

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In Reply:

We thank our correspondents and many other colleagues for their feedback about the PRISCUS list of potentially inadequate medications (PIM) for elderly patients.

The proportion of patients with PIM as determined by Schäfer and Wuttke cannot be compared to the 20% reported for the outpatient setting elsewhere (1). A recently published study from the US shows that implementation of the Beers list into the electronic prescribing system reduced prescriptions of PIM significantly (2).

The note about the increased fracture risk for pethidine that was included in the detailed PRISCUS list reflects expert opinion as per McLeod et al. (3). The study cited by Gehling presents recent results from a case-control study.

Adjuvant pain therapy using antidepressants and anticonvulsants is an important aspect in elderly patients. Experts' assessment of these medications remained primarily focused on the indication depression or seizures. On the other hand, antidepressants and anticonvulsants were deliberately named as alternatives to NSAIDs, which were classified as PIM.

On the basis of the risk assessment for diclofenac and etoricoxib we wish to point out again that we used methodically consensus opinion from experts, whom we furnished with publications that were as comprehensive as possible. The cited study by Fosbøl et al. (4) (registry study, 5 years before index date no admission to hospital, de facto medication “naïve” [for example, no beta blockers, diuretics, ACE inhibitors, and many others]) studied a different population than our defined target group of mainly elderly patients with multiple comorbidities.

The dilemma mentioned by Fiß and Hoffman, of a lacking definition for “elderly” and “age” is indeed unsatisfactory.

As the colleagues correctly pointed out, the recommendation of risperidone as an alternative to the potentially inadequately rated neuroleptics does not apply for dementia patients. This important comment provides an opportunity to point out a limitation: The alternatives mentioned in the PRISCUS list are suggestions for treatment, which should be evaluated for their benefit-

risk profile in the individual case before they are administered. We actually explicitly mentioned the need to pay attention to the product information in the PRISCUS list.

We welcome the idea that the PRISCUS list should be used by as many groups of researchers as possible, and that it should be monitored with regard to the prevalence of PIM in the context of adverse effects.

We wish to point out that the complete PRISCUS recommendations for medication are meant to support doctors and pharmacists. The list does not claim to be complete nor does it replace the individually tailored consideration of risks and benefits for the individual patient—rather, it is intended to raise awareness of the particular problems associated with drug treatment in elderly patients.

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Conflict of interest statement

In the past five years, Professor Thürmann has received honoraria for conducting two clinical phase I studies (on behalf of STADA AG and Biotest Pharma AG). She has received honoraria for speaking from Bayer Vital and Biotest Pharma AG, as well as honoraria for memberships in data safety monitoring boards (Ono pharmaceuticals, Fresenius Kabi). Dr Schmiedl and Ms Holt declare that no conflict of interest exists according to the guidelines of the International Committee of Medical Journal Editors.