UROLOGYPRACTICE

urologypracticejournal.com

AUA White Paper on the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

Tomas L. Griebling,*,† Martin K. Dineen,† Catherine E. DuBeau,‡ Deborah J. Lightner,† George F. Owens† and Christopher Tessier§

From American Urological Association Education and Research, Inc., Linthicum, Maryland

Abstract

Introduction: Medication related problems are common but may be preventable outcomes of prescribing choices. Risks associated with medications in the older adult population are greater due to changes in physiological function with age or disease. Older adults and those with significant comorbidities are often excluded from the clinical trials used to develop medications. In 2012 the American Geriatrics Society published the most recent update of the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. Several medications included in sections of the Beers Criteria are frequently used in clinical urology, including nitrofurantoin, alpha-1 blocker medications, and antimuscarinic anticholinergic medications for the treatment of urge incontinence and overactive bladder. We describe the challenges and considerations that are useful in prescribing medications for geriatric patients.

Methods: A literature review was performed targeting publications from 2003 to 2013 on the topics of the Beers Criteria, potentially inappropriate medications and specific urological medications included in the current version of the Beers Criteria. An expert panel was convened to evaluate this information and create this white paper with the purpose of educating the urological community on these issues.

Results: The rationale for the creation and implementation of the Beers Criteria and its implications for urological practice are reviewed. Careful examination of the Beers Criteria can help clinicians avoid potentially inappropriate prescribing choices for their geriatric patients. We also identified that the HEDIS® high risk medications list of potentially inappropriate medications has been implemented as a negative quality indicator, even though this was not an original purpose of the Beers Criteria. In other words, decisions of denial of coverage and/or requirements for preauthorization are being made using the Beers Criteria as justification by third party payers and other entities.

Abbreviations and Acronyms

AGS = American Geriatrics Society

AUA = American Urological Association

BPH = benign prostatic hyperplasia

CMS = Centers for Medicare and Medicaid Services

CrCl = creatinine clearance

HEDIS® = Healthcare Effectiveness Data and Information Set

HRM = high risk medications

LUTS = lower urinary tract symptoms

NCQA = National Committee for Quality Assurance

OAB = overactive bladder

PIM = potentially inappropriate medication

Submitted for publication April 29, 2015.

The corresponding author certifies that, when applicable, a statement(s) has been included in the manuscript documenting institutional review board, ethics committee or ethical review board study approval; principles of Helsinki Declaration were followed in lieu of formal ethics committee approval; institutional animal care and use committee approval; all human subjects provided written informed consent with guarantees of confidentiality; IRB approved protocol number; animal approved project number.

* Correspondence: Department of Urology, University of Kansas, Kansas City, Kansas (*e-mail address:* tgriebling@kumc.edu).

† No direct or indirect commercial incentive associated with publishing this article.

‡ Financial interest and/or other relationship with UpToDate and Pfizer.

§ Financial interest and/or other relationship with Elsevier.

2352-0779/16/32-102/0
UROLOGY PRACTICE

http://dx.doi.org/10.1016/j.urpr.2015.06.011
Vol. 3, 102-111, March 2016
Published by Elsevier

Conclusions: The Beers Criteria were developed to improve prescribing practices for older adult patients to reduce or avoid potential risks and complications. We encourage clinicians to educate themselves about the Beers Criteria recommendations and associated initiatives that are aimed at improving the care of older adult patients. Urologists should have a key role in the development, evaluation, implementation and analysis of practice measures and the resulting policies.

Key Words: aged, geriatrics, safety, prescription drugs, polypharmacy

Background and Purpose of the Beers Criteria

Medication related problems such as adverse drug reactions, drug-to-drug interactions, drug-disease interactions, polypharmacy and other complications are common, but may be preventable outcomes of prescribing choices. These problems occur particularly frequently among geriatric patients, who tend to be at higher risk for medication associated complications. In 2012 the AGS published the most recent update of the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults.[1] The original Beers Criteria published in 1991 were focused specifically on nursing home residents,[2] and subsequent revisions in 1997 and 2003 included expanded considerations of care for older adults in all clinical settings.[3,4]

The most recent document is based on an exhaustive, systematic review of the published literature regarding medications and their usefulness and potential risks vs benefits in older adults.[1] The writing panel used IOM (Institute of Medicine) methodology to grade the quality of literature and also assigned a statement regarding the strength of recommendation for each medication in the listing.[5] The listing categorizes medications into 3 primary groups of 1) those to avoid prescribing in older adults, 2) those to avoid in cases of specific drug-disease or drug-syndrome interactions and 3) those to be used with caution in older adults.

The goal of the Beers Criteria is to improve the effectiveness and safety of prescription practices for geriatric patients. The AGS has noted that the Beers Criteria should never be used to supersede clinical judgment and individualized patient care. The AGS does not endorse the use of the Beers Criteria to certify medications as "never appropriate" for older persons.

This is particularly notable as medications with common properties such as strong anticholinergic and antimuscarinic effects are classified by the Beers Criteria as potentially inappropriate. Apart from the newer OAB medication mirabegron (which was launched after the systematic review was completed for the 2012 Beers Criteria revision), there are currently no other oral pharmaceutical substitutes for antimuscarinics. The successful management of OAB is challenging, and while behavioral management should be used primarily, the use of these types of medications remains an important part of management in appropriately selected patients. Indeed, based on expert opinion and existing published evidence, the Beers Criteria acknowledge that PIMs could be appropriate under certain circumstances with shared decision making between the prescribing clinician and patient.

Costs and adverse events associated with the use of PIMs are substantial. According to the 2000/2001 Medical Expenditure Panel Survey the total estimated health cost related to the use of PIMs was $7.2 billion.[6] Adverse drug events were avoidable in 27% of cases in primary care settings and 42% of cases in long-term care settings.[7,8]

Adverse drug reactions in older adults can lead to a wide variety of negative outcomes. Between 2007 and 2009 an estimated 99,628 emergency hospitalizations were required for older adults due to adverse drug reactions.[9] Furthermore, analysis of several national data sets showed that of an estimated 177,504 emergency room visits for adverse drug events in older adults, 3.6% of visits were due to medications considered "potentially inappropriate for use in older adults" by the 2003 version of the Beers Criteria.[10]

Although older adults, defined here as those 65 years old or older, currently account for approximately 13% of the total population of the United States, they receive more than 30% of all prescription medications.[11] National data show that overall prescriptions continue to increase, particularly among older adults. In 2007 to 2008 more than 76% of people age 60 or older used 2 or more prescription medications and 37% used 5 or more.[12]

In 2004 Curtis et al conducted a retrospective cohort analysis from a claims database for a large national pharmaceutical benefits manager for outpatient prescriptions.[13] Of 765,423 patients older than age 65, 21% filled at least 1 prescription for a medication of concern under the 1997 Beers Criteria, more than 15% had prescriptions for 2 different medications on the list and 4% received prescriptions for 3 or more concerning medications.

Amitriptyline and doxepin accounted for 23% of all claims regarding a drug from the Beers Criteria listing and oxybutynin accounted for 8.1% of claims. In a more recent study Gallagher et al examined 597 consecutive acute hospital admissions among older adults with a mean age of 77 $\pm$ 7 years.[14] Inappropriate prescribing based on the 2003 Beers Criteria was identified in 32% of subjects. Polypharmacy