

INAPPROPRIATE DRUG THERAPY IN THE ELDERLY

Background

Inappropriate medication use in the elderly has been associated with a substantial number of adverse drug reactions, worsening physical function, and excessive healthcare utilization.¹ **It is estimated that up to thirty percent of hospital admissions in elderly patients are due to drug-related problems or drug toxic effects. In the year 2000, medication-related problems were believed responsible for over 106,000 deaths and cost the healthcare system in excess of \$85 billion.**² For these reasons, vigilant monitoring in vulnerable populations such as the elderly is essential for both improving patient safety and relieving unnecessary economic burden on healthcare resources.

Because clinical information on the safe use of medications in the elderly is varied and incomplete, consensus criteria such as those proposed by Mark Beers, MD and associates are useful in clinical practice. **“The Beers criteria,” as they have come to be known, are perhaps the best-recognized and most respected consensus criteria for medication use in the elderly. Developed and reviewed by a number of expert panels in geriatric medicine and pharmacology, the Beers criteria, although first proposed in 1991, have since been revised and updated.**^{2,3,4} These criteria were developed based on extensive literature review and questionnaire evaluation by nationally recognized experts in the field of geriatric medicine.

A total of 48 individual medications or classes of medications to avoid in elderly nursing home residents were originally identified by the Beers group in 1991.⁴ These medications were listed as such because they are either lacking in efficacy or pose an unnecessarily high risk to patients and safer alternatives are available. In 1997, the criteria were updated and applied to all elderly patients.³ **In 2000, further categorization by Zhan and colleagues classified the Beers-identified medications as drugs that should always be avoided (AA), those that are rarely appropriate (RA), and those that have some indications for use in the elderly but are often misused (SI).**⁵

Potentially Inappropriate Medications

Medications categorized as **always avoid** include: barbiturates (butabarbital, pentobarbital, secobarbital, but NOT phenobarbital), belladonna alkaloids, chlorpropamide, dicyclomine, flurazepam, hyoscyamine, meperidine, meprobamate (& carisoprodol), pentazocine, propantheline, and trimethobenzamide.

Medications categorized as **rarely appropriate** include: chlordiazepoxide compounds (including clidinium-chlordiazepoxide), chlorzoxazone, cyclobenzaprine, diazepam, methocarbamol, metaxalone, and propoxyphene.

Medications that may have **some indications but are often misused** include: amitriptyline, amitriptyline/perphenazine, chlorpheniramine, cyproheptadine, diphenhydramine, dipyridamole, disopyramide, doxepin, hydroxyzine, indomethacin, methyldopa, oxybutynin, promethazine, reserpine, and ticlopidine.

Selected Drugs to Avoid Independent of Diagnoses or Conditions²

| SPECIFIC AGENTS | | COMMENTS |
|-----------------------|-------------------|--|
| BRAND | GENERIC | |
| Dalmane [®] | Flurazepam | Extremely long half-life in elderly, prolonged sedation and fall risk |
| Soma [®] | Carisoprodol | Metabolized to meprobamate; addictive and sedating |
| Bentyl [®] | Dicyclomine | GI antispasmodics are highly anticholinergic; effectiveness uncertain |
| Levsin [®] | Hyoscyamine | |
| Tigan [®] | Trimethobenzamide | Least effective antiemetic; can cause extrapyramidal adverse effects |
| Demerol [®] | Meperidine | May cause confusion & seizures, many disadvantages to other opioids |
| Darvon [®] | Propoxyphene | Adverse effects of opioids, yet few analgesic advantages over acetaminophen |
| Indocin [®] | Indomethacin | Most CNS adverse effects of the NSAIDs |
| Elavil [®] | Amitriptyline | Strong anticholinergic and sedative properties |
| Benadryl [®] | Diphenhydramine | Should not be used as a hypnotic; when treating allergic reactions, use smallest possible dose |

Recommendations

Although a persuasive argument in favor of using the Beers criteria can be made and evidence is accumulating that demonstrates improved patient care and better outcomes, their across-the-board application in all patients has been criticized. **Both aging and drug therapy is an individualized process and patient specific parameters must be considered. With this in mind, the Beers criteria should be viewed as simply one important component of the clinical decision-making process to ensure the best possible outcomes for elderly patients.**

References

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