

Inappropriate drug prescribing for the community-dwelling elderly.

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Willcox SM, Himmelstein DU, Woolhandler S.

FROM ABSTRACT:

OBJECTIVE--To examine the amount of inappropriate drug prescribing for Americans aged 65 years or older living in the community.

DESIGN--Cross-sectional survey of a national probability sample of older adults.

SETTING--The 1987 National Medical Expenditure Survey, a national probability sample of the US civilian noninstitutionalized population, with oversampling of some population groups, including the elderly.

SUBJECTS--The 6171 people aged 65 years or older in the National Medical Expenditure Survey sample, using appropriate weighting procedures to produce national estimates.

MAIN OUTCOME MEASURES--Incidence of prescribing 20 potentially inappropriate drugs, using explicit criteria previously developed by 13 United States and Canadian geriatrics experts through a modified Delphi consensus technique.

Three cardiovascular drugs identified as potentially inappropriate were analyzed separately since they may be considered appropriate for some noninstitutionalized elderly patients.

RESULTS--A total of 23.5% (22.4% to 24.6%) of people aged 65 years or older living in the community, or 6.64 million Americans (6.28 million to 7.00 million), received at least one of the 20 contraindicated drugs.

While 79.6% (77.2% to 82.0%) of people receiving potentially inappropriate medications received only one such drug, 20.4% received two or more.

The most commonly prescribed of these drugs were dipyridamole, propoxyphene, amitriptyline, chlorpropamide, diazepam, indomethacin, and chlorthalidone, each used by at least half a million people aged 65 years or older.

Including the three controversial cardiovascular agents (propranolol, methyldopa, and reserpine) in the list of contraindicated drugs increased the incidence of probably inappropriate medication use to 32% (30.7% to 33.3%), or 9.04 million people (8.64 million to 9.44 million).

CONCLUSION--Physicians prescribe potentially inappropriate medications for nearly a quarter of all older people living in the community, placing them at risk of drug adverse effects such as cognitive impairment and sedation.

Although most previous strategies for improving drug prescribing for the elderly have focused on nursing homes, broader educational and regulatory initiatives are needed.

THESE AUTHORS ALSO NOTE:

"People aged 65 years or older account for about one third of all prescription drugs used and are at high risk for adverse drug effects."

Taking multiple drugs sharply increases the risks of adverse effects.

These authors, by using a subset of drugs that previous studies have determined that the elderly should never use, developed conservative estimates of the incidence of inappropriate drug prescribing for community-dwelling elderly persons in the USA.

These authors found that 82% of those aged 65 or greater took prescription drugs, and 23.5% were taking a prescription drug that should never be used by the elderly.

This 23.5% of the elderly taking an inappropriate prescription drug amounts to about 7 million US seniors.

Of the 82% of seniors who were taking prescription drugs, 29% were taking an inappropriate drug.

Importantly, "inappropriate drug" was defined as a drug that the elderly should never take, based upon a published list in 1991 of 20 such drugs. "Inappropriate" did not include those who were taking drugs that they did not need, did not include those who were taking the wrong drug, did not include combination of drugs that should be avoided, and did not include dosage problems.

The authors note that 81,000 American seniors are given diazepam and propoxyphene. Both drugs are inappropriate, and in combination cause additive CNS depression.

66,000 American seniors are given both amitriptyline and chlorthalidone. Both drugs are also inappropriate and also cause additive CNS depression in combination.

In fact, these authors found that more than 1 million elderly Americans were taking 2 or more inappropriate drugs, and some were consuming as many as 5 different inappropriate drugs.

In another example, the authors note that the drug dipyridamole is appropriate for those undergoing heart valve replacement. In the year of their analysis, 36,000 Americans underwent such surgery, and 18,000 were older than age 65. This gives a maximum appropriate utilization of this drug at 18,000 seniors. Yet, astonishingly, 1.8 million seniors were taking this drug.

When these authors repeated their analysis using the consensus panel's original list of 23 contraindicated drugs (vs. 20), they found that 32% (9.04 Million) seniors had been exposed to one or more of these drugs in the assessment year.

These authors state:

"We found a disturbingly high level of potentially inappropriate prescribing for older people living in the community."

"Over the course of 1 year, almost one quarter of older Americans were unnecessarily exposed to potentially hazardous prescribing."

In another study when drug dosage and length of drug consumption were considered, the inappropriate use rate rose to 40%.

The 20 "never to be used" drugs used in this analysis were chosen as such because studies have shown that they were either ineffective or more toxic than equally effective alternatives.

"Standard published sources support the view that the 20 drugs in our primary analysis should virtually never be prescribed for the elderly."

"Our study probably underestimates the incidence of inappropriate prescribing for the elderly."

The authors did not "consider excessive drug dosage or duration, medication interactions," or the prescribing of a drug in an inappropriate clinical situation.

"Since 1992, retail pharmacies filled more than 65 million prescriptions for the 20 drugs on our core list."

An accompanying editorial to this article titled "**Suboptimal Medication Use in the Elderly, The Tip of the Iceberg**," adds the following:

Suboptimal Medication Use in the Elderly, The Tip of the Iceberg.
JAMA. Jul 27, 1994;272(4):316-7

Gurwitz JH,

"The problem on inappropriate prescribing of medications to older patients is widely acknowledged and has been publicized by professional societies, governmental organizations, advocacy groups for the elderly, and the media."

The problems with nonsteroidal anti-inflammatory drugs (NSAIDs) in seniors was only partially addressed by Willcox because "all NSAIDs have been associated with gastrointestinal bleeding and nephrotoxicity."

"The authors did not fully consider serious interactions between drugs in their analysis, nor did they consider the prescribing of 'appropriate' medications in an inappropriate fashion."

Consequently, as implied in the title of his editorial, this editor suggests that the findings by Willcox and associates are only the tip of the iceberg as related to inappropriate prescribing of drugs to our elderly.

KEY POINTS FROM DAN MURPHY:

- 1) There is an established list of 20 to 23 drugs that the elderly should not take.
- 2) Amazingly, about 32% of seniors (more than 9 million seniors) are taking at least one of the drugs on this list, and some are taking as many as five drugs that are on the list.
- 3) People aged 65 years or older account for about one third of all prescription drugs used.
- 4) 82% of those aged 65 or greater take prescription drugs.
- 5) Taking multiple drugs sharply increases the risks of adverse effects.
- 6) Importantly, "inappropriate drugs" did not include those who were taking drugs that they did not need, did not include those who were taking the wrong drug, did not include combination of drugs that should be avoided, and did not include dosage problems.
- 7) When drug dosage and length of drug consumption were considered, the inappropriate use rate rose to 40%.
- 8) All NSAIDs are associated with gastrointestinal bleeding and nephrotoxicity.
- 9) This study underestimates the incidence of inappropriate prescribing for the elderly, and shows only the "tip of the iceberg."