

# Commonly used drugs lead to more doctor's office, hospital and emergency department visits

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Anticholinergic medications, a class of drugs very commonly used by older adults, are linked to an increased rate of emergency department and hospital utilization in the United States, according to an Indiana University Center for Aging Research, Indiana University Center for Health Innovation and Implementation Science, and Regenstrief Institute study of community-dwelling Americans age 65 and older.

Drugs with anticholinergic properties are frequently prescribed or purchased over the counter for chronic conditions including depression, anxiety, pain, allergy, incontinence or sleep problems. These drugs are used by as many as half of older adults and it is not unusual for an older individual to be taking two or more anticholinergic medications regularly.

The new study, published in the November 2016 issue of the peer-reviewed journal *Pharmacotherapy*, analyzed actual prescription dispensing data from the Regenstrief Medical Record System to determine how much anticholinergic medication each person used, known as anticholinergic burden, and utilization of healthcare services such as hospital, emergency department and ambulatory visits. Prescription dispensing data are known to be more reliable than self-reported information.

Fifty-eight percent of the 3344 study participants were African-

American; 71 percent were female. Fewer than 10 percent were cognitively impaired. All were patients served by Eskenazi Health, an academic teaching health care system in Indianapolis.

"Anticholinergics, the medications that block acetylcholine, a nervous system neurotransmitter, have previously been implicated as a potential cause of cognitive impairment, by us and by other researchers," said IU Center for [Aging Research and Regenstrief Institute](#) investigator Noll Campbell, PharmD, who led the new research. "This is the first study to calculate cumulative anticholinergic burden and determine that as burden increases, so does healthcare utilization in the U.S.—both outpatient and inpatient."

Dr. Campbell and colleagues report that taking a drug with mild [anticholinergic effect](#) daily increased the likelihood of inpatient admission by 11 percent over a year. Many drugs used to treat heart failure and hypertension fall into the mild group, such as diuretics. Taking a drug with a strong anticholinergic effect daily increased the likelihood of inpatient admission by 33 percent over a year. Sleeping pills, one of the most common medications used by elders, are in this category as are antihistamines, which are available without prescription.

The IU Center for Aging Research has studied patient safety harms from anticholinergic medications in diverse populations for over a decade.

In 2008, center scientists, led by the Chief Innovation and Implementation Officer of IU Center for Health Innovation and Implementation Science Malaz Boustani, MD, MPH, developed the Anti-Cholinergic Burden Scale, one of the most widely used tools to pinpoint the anticholinergic properties and anticholinergic load of specific drugs. Anticholinergic burden in this study was defined as the number of days someone was dispensed an anticholinergic medicine multiplied by the strength (mild versus strong) of the anticholinergic load.

The new study was the first time that the Anti-Cholinergic Burden Scale was employed to calculate a cumulative score weighted by both number of days dispensed and strength of anticholinergic effect using prescription dispensing databases.

In 2013 the IU Center for Aging Research investigators reported that continuously taking strong anticholinergics for as few as 60 days caused memory problems and other indicators of mild cognitive impairment. Taking multiple drugs with weaker anticholinergic effects, such as many common over-the-counter digestive aids, had a negative impact on cognition in only 90 days.

"As baby boomers age and the number of older adults increases, it is especially important to recognize the negative impact of anticholinergic medications on the aging brain and healthcare delivery cost," said Dr. Boustani. "There is a powerful association between these harmful medications and potentially avoidable cognitive impairment and increased visits to the doctor, the ER and the hospital."

"Individuals taking anticholinergics should talk with their doctors or pharmacists about possible alternatives," Dr. Campbell said. "This new study provides stronger motivation to design and conduct de-prescribing studies to determine safe ways to take individuals off [anticholinergic medications](#) in the interests of preserving brain health and decreasing healthcare utilization rates and their potential costs." Dr. Campbell is an assistant professor of pharmacy practice at Purdue University College of Pharmacy and a clinical pharmacy specialist with Eskenazi Health.

Provided by Indiana University

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