Common drugs linked to cognitive impairment and possibly to increased risk of death

June 24 2011

A large, long-term study confirms that medications with anticholinergic activity, which include many drugs frequently taken by older adults, cause cognitive impairment. The research is also the first to identify a possible link between these drugs – which include over-the-counter and prescription sleep aids and incontinence treatments – and risk of death.

The two-year study of the impact of these medications on 13,000 men and women aged 65 and older is part of the Medical Research Council (UK) Cognitive Function and Ageing Studies (CFAS), a large UK-based longitudinal multi-center study initiative looking at health and cognitive function in older adults. Results of the study of anticholinergics appear June 24, 2011 in an advanced online publication of the *Journal of the American Geriatrics Society*.

Anticholinergics affect the brain by blocking acetylcholine, a nervous system neurotransmitter. Over-the-counter products containing diphenhydramine, sold under various brand names such as Benadryl, Dramamine, Excedrin PM, Nytol, Sominex, Tylenol PM, and Unisom, have anticolinergic activity. Other anticholinergic drugs, such as Paxil, Detrol, Demerol and Elavil are available by prescription.

"Our findings make it clear that clinicians need to review the cumulative anticholinergic burden in people presenting with cognitive impairment to determine if the drugs are causing decline in mental status," said co-

author Malaz Boustani, M.D., Regenstrief Institute investigator, Indiana University School of Medicine associate professor of medicine, and research scientist with the IU Center for Aging Research.

"Physicians should review with older patients all the over-the-counter and prescription drugs they are taking to determine exposure," said Dr. Boustani a geriatrician who sees patients at Wishard Health Services' Healthy Aging Brain Center in Indianapolis.

The researchers, led by Chris Fox, M.D., of the University of East Anglia and Carol Brayne, M.D. of the University of Cambridge, used the Anticholinergic Cognitive Burden Scale developed by Dr. Boustani and colleagues at the Regenstrief Institute, Indiana University and in the United Kingdom to evaluate the link between anticholinergic activity and cognitive decline.

Medications with anticholinergic effects are used for many diseases including hypertension and congestive heart failure. The study found that older age, lower income, and greater number of health conditions increased use of medications with anticholinergic activity. Women were more likely to report taking anticholinergic medications, due to the greater number of health conditions reported by women than by men. Participants living in institutions were more likely to report taking anticholinergic medications.

"We looked at drugs with either moderate and severe anticholinergic activity. After adjusting for age, sex, baseline mental status, education, income level, number of non-anticholinergic medications and health conditions, we found that taking anticholinergic medications was linked to cognitive impairment and for the first time to death," said study corresponding author Dr. Fox, a psychiatrist. "We need follow-up to determine the degree to which anticholinergics are being prescribed for diseases with significant risk of death and the impact of that on our

findings."

Authors of the study are Chris Fox, M.D., University of East Anglia; Carol Brayne, M.D., Kathryn Richardson, M.Sc. and George M. Savva, Ph.D, University of Cambridge; Ian D. Maidment, M.A., Kent and Medway NHS and Social Care Partnership Trust; Fiona E. Matthews, Ph.D., Medical Research Council Biostatistics Unit; David Smithard, M.D., Kent Community Health NHS Trust; Simon Coulton M.Sc., University of Kent; Cornelius Katona, M.D., University College London and Malaz Boustani, M.D., M.P.H., Regenstrief Institute, Indiana University School of Medicine and IU Center for Aging Research.

"The Anticholinergic Medication Use and Cognitive Impairment in the Older Population: The Medical Research Council Cognitive Function and Ageing Study (CFAS)" was funded by the Medical Research Council.

"The Medical Research Council invests in cohort studies like CFAS because they provide vital clinical information through observation. Such projects require long-term commitment to fulfill their potential but having supported cohort studies for well over half a century, MRC funding and collaborations have made us an international leader in this field," said Chris Kennard, MBBS, Ph.D., chairman of the MRC's Neuroscience and Mental Health Board.

Provided by Indiana University School of Medicine