

Research Title:

Evaluation of Anticholinergic Risk and Potentially Inappropriate Medications in Hospitalized Older Adults: Clinical Significance in Acute Care Geriatric Patients

Principal Investigator:

Hiroyuki Umegaki, MD, PhD

Professor, Department of Community Healthcare and Geriatrics,

Nagoya University Graduate School of Medicine

14 November 2025

Abstract

Hospital-acquired complications (HACs), particularly delirium and falls, occur frequently among older adults during acute hospitalization and adversely affect prognosis and functional outcomes. Anticholinergic medications and potentially inappropriate medications (PIMs) are important pharmacologic risk factors for these events; however, evidence based on Japanese clinical practice remains limited.

Using data from the multicenter J-HAC registry jointly developed by Nagoya University, the National Center for Geriatrics and Gerontology, Osaka University, and the University of Tokyo, we analyzed 818 hospitalized older adults. Anticholinergic burden was quantified using the Japanese Anticholinergic Risk Scale (JARS), and PIMs were identified according to the *Guidelines for Safe Pharmacotherapy in Older Adults 2025*. The primary outcomes were in-hospital delirium and falls, assessed via multivariable logistic regression adjusting for age, sex, frailty, and other confounders. More than half of the patients (53.1%) had a JARS score ≥ 1 , and 77.9% received at least one PIM. JARS was independently associated with the development of delirium, whereas PIMs showed no significant association. Neither JARS nor PIMs were significantly associated with in-hospital falls. These findings indicate that JARS is a valid and clinically useful tool for evaluating anticholinergic risk among hospitalized older adults in Japan. Further interventional studies are warranted to determine whether reducing anticholinergic burden can prevent delirium and other HACs and to support safer pharmacotherapy in acute care geriatric settings.