

Anticholinergic drugs continued without review lower voiding efficiency in older adults

Quantified with the Japanese Anticholinergic Risk Scale (JARS) in 196 long-term-care residents

Anticholinergic burden from polypharmacy affects not only cognition but also bladder emptying: each 1-point rise in JARS raised the odds of voiding efficiency <50% by 28%, while post-void residual was unchanged.

1.28 adjusted OR for voiding efficiency <50%, per 1-point JARS

196 residents analysed

57.2% mean voiding efficiency

Impact of Anticholinergic Burden on Voiding Function in Older Adults: A Cross-Sectional Study Using the Japanese Anticholinergic Risk Scale

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Background: ACB and JARS

ACB scale (2008/2012) scores each drug 1 (possible, in-vitro muscarinic affinity) to 3 (definite, may cause delirium); the sum is the cumulative burden. Developed abroad, it omits many drugs routinely used in Japan.

JARS (2024, Japanese Society of Geriatric Pharmacy) keeps the same 1–3 framework but re-evaluates 158 drugs available in Japan — 37 score 3, 27 score 2, 94 score 1.

Gap Both were built to predict cognitive harm. Detrusor contraction is cholinergically driven — might they also predict voiding function?

Methods

Design Cross-sectional; 202 residents with lower urinary tract symptoms, 4 long-term-care facilities, Japan, 2019–2022

Exposure JARS total score — every prescription matched drug-by-drug against the 158 listed drugs (1–3 points each)

Measures Voided volume from bladder diary; PVR by portable ultrasound (Lilium®). VE = voided / (voided + PVR)

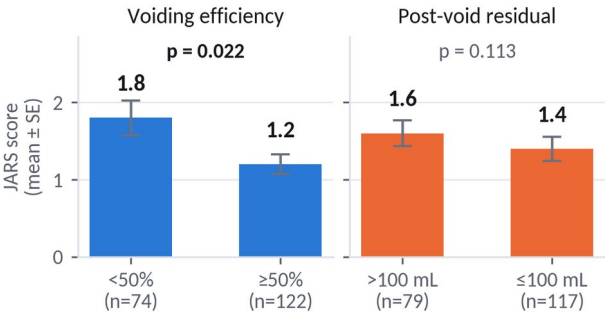
Outcomes VE <50% and PVR >100 mL; medians as sensitivity analysis

Analysis Logistic regression adjusted for age, sex, non-JARS drug count and facility

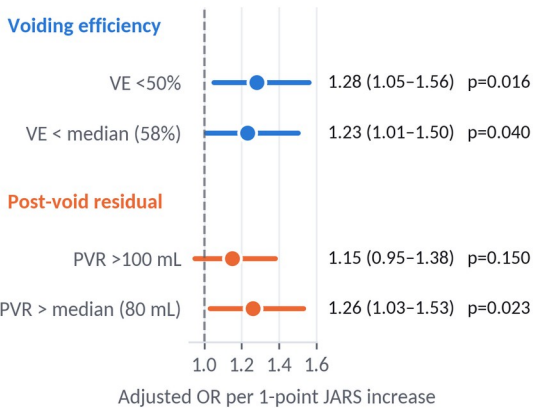
Participants (n = 196) • mean ± SD or n (%)

Age, years	87.7 ± 7.0
Female	152 (77.6%)
Medications, n	5.7 ± 2.9
Voided volume, mL	136 ± 86
Post-void residual, mL	110 ± 95
Voiding efficiency, %	57.2 ± 21.5
JARS score	1.45 ± 1.61 (median 1)

Univariable comparison



Multivariable analysis



Adjusted for age, sex, number of non-JARS drugs and facility. Stable across five models (OR 1.27–1.32, all p ≤ 0.018); no association on continuous scales (VE β −1.69 %/point, p = 0.077).

Interpretation

Anticholinergic burden blunts emptying efficiency rather than causing frank retention. With small voided volumes absolute PVR moves little; VE — normalised to bladder volume — is the more sensitive marker.