Relationship between Anticholinergic Burden and Delirium in Geriatric Patients: A Case-Control Study

CHENG FP (1), NG HM (1), TANG K (1), LAU ML (2), TAM YY (2), CHEUNG KLK (1), CHAN CC (2)

(1) Department of Pharmacy, United Christian Hospital (2) Department of Medicine and Geriatrics, United Christian Hospital

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Introduction
Exposure to anticholinergic drugs is probably one of the most common causes of delirium in elderly.

Objectives
This case-control study aims at exploring the relationship between delirium and anticholinergic burden, as well as other potential risk factors, in geriatric population.

Methodology
Patients aged 65 years or above who developed delirium in 2 geriatric wards of United Christian Hospital during August 2011 to July 2013 were identified from the Delirium Care Model registry. Under a 1:4 matching ratio, controls with similar baseline characteristics were matched individually to each delirium case. Anticholinergic burden was assessed by Anticholinergic Cognitive Burden (ACB) Scale and medications used within 7 days prior to delirium/admission were counted. The primary outcome was the exposure to anticholinergic drug, as reported by the number of patients using medications with definite anticholinergic property and the total ACB score. Logistic regression was performed to identify other risk factors of delirium as the secondary outcome.

Result
Thirty-nine out of 50 patients in the delirium registry were matched with 156 controls. There was no significant difference in anticholinergic burden between the two groups in terms of the number of patients using medications with definite anticholinergic property and total ACB score. A total ACB score greater or equal to 3 was not
associated with incidence of delirium (odds ratio 0.64, 95% CI 0.27-1.49, p = 0.298). First-generation antihistamines were the most commonly prescribed medications with definite anticholinergic property. Acute retention of urine, constipation and history of delirium showed positive correlation with delirium in univariate analysis. Multivariate logistic regression showed association between delirium and acute retention of urine (odds ratio 10.90, 95% CI 2.74-43.33, p = 0.001) and history of delirium within 1 year (odds ratio 3.42, 95% CI 1.24-9.49, p = 0.018). This study demonstrated that acute retention of urine, constipation and prior history of delirium could be predictive factors of delirium. Although correlation between ACB score and delirium could not be established in regression analysis, drugs with potent anticholinergic property should be used judiciously in geriatric population.