Increasing Anticholinergic Burden and Delirium in Palliative Care Inpatients

Reference: **Kristin M Zimmerman, Marci Salow, L Michal Skarf, Tia Kostas, Allison Paquin, Mark J Simone, James Rudolph.** Increasing anticholinergic burden and delirium in palliative care inpatients. *Palliat Med* 2014 28: 335

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Aim: The aim of this study is to determine whether increasing anticholinergic burden, as measured using a clinical assessment tool, is associated with an increase in delirium among palliative care inpatients.

Method: This study was completed as a retrospective, case-control study. Veterans admitted to the Veterans Affairs Boston Healthcare System and consulted to the palliative care service were considered for inclusion. Increase in anticholinergic burden from admission through hospital day 14 was assessed using the Anticholinergic Risk Scale. Delirium was determined by use of a validated chart review instrument.

Results: A total of 217 patients were analyzed, with a mean age of 72.9 (±12.8) years. The overall delirium rate was 31% (*n* = 67). Patients with an increase in Anticholinergic Risk Scale (*n* = 72 (33%)) were 40% more likely to experience delirium (odds ratio = 1.44, 95% confidence interval = 1.07–1.94) compared to those without increase (*n* = 145 (67%)). After adjustment for age, brain metastasis, intensive care unit admission, illness severity, opiate use, and admission Anticholinergic Risk Scale using multivariable modeling, delirium risk remained significantly higher in patients with an Anticholinergic Risk Scale increase compared to those without increase (adjusted odds ratio = 1.43, 95% confidence interval = 1.04–1.94).

Conclusion: An increase in Anticholinergic Risk Scale (ARS) from admission was associated with delirium in palliative care inpatients. While additional study is needed, anticholinergic burden should be increased cautiously in palliative inpatients, and those with increases should be closely followed for delirium.

Strengths:
Relevant palliative care study population.
Researchers attempted tot adjust study results for confounding causes of delirium using APACHE III score.

Weaknesses:

The retrospective, case-control design supports an association, but not causation, between increased anticholinergic burden and delirium.
Some studies have not found a similar association.
55% of patients with no change or decrease in ARS score also developed delirium in this study.
97% of subjects were males.

Relevance to palliative care: This study introduces the Anticholinergic Risk Scale, a scoring system validated in the geriatrics population, and to translate its application to palliative care inpatients to help clinicians identify delirium induced by anti-cholinergic drugs, which are often used by many palliative care patients. The ARS helps estimate the risk of drug-induced delirium (increase in ARS by 2 is associated with 40% increase in odds of delirium), and when delirium may occur (peak ARS precedes delirium by 2 days), and may help mitigate the risk of drug-induced delirium. However, further studies (with a prospective design and controlling for delirium confounders) are needed to fully validate the ARS in palliative care inpatients.