



Risk of Memantine Initiation with Use of Antimuscarinics and/or Cholinesterase Inhibitors in Older Adults with Alzheimer's Disease

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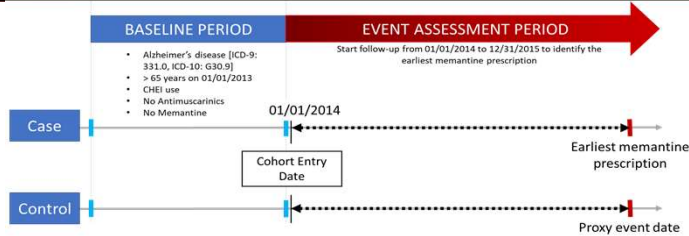
BACKGROUND

- As of 2020, 5.8 million Americans are living with Alzheimer's disease (AD).
- Cholinesterase inhibitors (CHEIs) form the first line of pharmacotherapy for AD.
- The treatment effectiveness of CHEIs is considered modest and their use leads to adverse effects such as urinary incontinence.
- Prescribing cascade is a concern in AD as the CHEI-induced urinary incontinence leads to prescribing of antimuscarinics.
- Use of antimuscarinics (AM) along with CHEIs can nullify the modest treatment benefit of CHEIs due to the therapeutically opposing mechanisms of action.
- This worsening of AD can precipitate prescribing of memantine for moderate-to-severe AD.
- Limited evidence exists regarding the prescribing of memantine for worsening AD due to cascades associated with CHEIs.

OBJECTIVE

To assess the risk of memantine initiation in older adults with AD using AM and CHEIs.

STUDY DESIGN



METHODS

Study population and design

- Data:** Medicare administrative claims from 2013 to 2015
- Design:** Nested Case Control
- Base cohort** included AD patients (≥ 65 years) with CHEIs but without AM or memantine in 2013
- Cases and controls**
- Cases: Memantine prescription fill during 2014-15.
- Controls: No memantine prescription fill during 2014-15.

Primary exposure of interest:

- AM and/or CHEI exposure during the 3-month period before the event date

Matching criteria:

- Variable ratio matching, by replacement on age at event.

Conceptual Model: Study covariates were selected based on the Andersen Behavioral Model

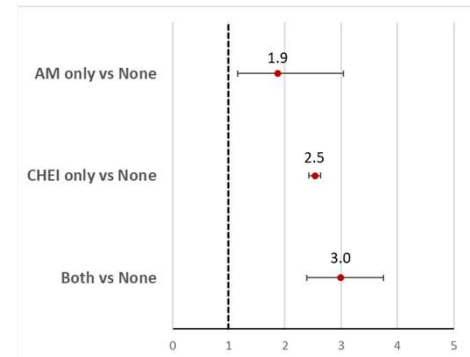
Statistical Analysis: Conditional logistic regression

RESULTS

Table 1: Patient Demographic and Clinical Characteristics

Variable	Cases N=13,673	Controls N=64,853	p
Age (years)	81.0	83.1	< 0.01
Male gender	34.1%	29.2%	< 0.01
Race-ethnicity			< 0.01
White	81.4%	79.1%	
Black	8.2%	10.7%	
Asian/ PI	2.4%	2.4%	
Hispanic	6.9%	6.9%	
Unknown/other	0.9%	0.9%	
Elixhauser score			<0.01
0	10.9%	9.5%	
1-2	44.7%	42.2%	
3-4	28.9%	30.8%	
>4	15.4%	17.6%	
AM/CHEI use			<0.01
None	35.8%	55.8%	
Both	0.8%	0.4%	
CHEI only	63.2%	43.7%	
AM only	0.2%	0.1%	

Figure 1. Risk-adjusted Odds of Memantine Initiation in Patients with AD



* Model adjusted for age, race, sex, Elixhauser score, comedications, frailty, anticholinergic levels, BPSD as proxy for severity of dementia.

CONCLUSIONS

- The study found that concomitant use of antimuscarinics and CHEIs was limited in AD.
- The risk of memantine initiation was high across all exposure groups compared to no use.
- Memantine was used as a proxy of worsening AD and findings of this study showed that the risk of memantine use varied with exposure to CHEI and AM.

REFERENCES

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- Moga DC, Abner EL, Wu Q, Jicha GA. Bladder antimuscarinics and cognitive decline in elderly patients. *Alzheimers Dement (N Y)*. 2017;3(1):139-148. doi:10.1016/j.trci.2017.01.003.

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