Reviewer's report

Title: An investigation of factors predicting the type of bladder antimuscarinic initiated in Medicare nursing homes residents

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Reviewer: Adrian Wagg

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This retrospective analysis sought to identify factors associated with the prescription of bladder antimuscarinic agents in nursing home residents

The definition of UI is incorrect
To suggest that all UI can be classified as stress, urgency and mixed symptoms is wrong.
The preferred term for urge incontinence is urgency incontinence
The trials showing efficacy of AMs are many - the authors quote selectively, and only one of the trials which they quote was conducted in NH residents.
The BAM class variably affect M1,M2, M3 receptors, suggesting an action at M3 only is oversimplification - as far as urgency incontinence goes, the M2 effect is probably important.

Thee are data suggesting that oxybutynin use is associated with an increase in falls in NH residents with dementia - data from the community dwelling elderly suggest no increase in risk of fall with OAB treatment - OAB is associated with a doubling in fall risk. There are data suggesting an association with oxybutynin IR and cognitive impairment, this is not the case for other BAM and inconsistent for oxybutynin in NH residents with UI. The authors have produced an unbalanced argument here; this needs attention and correction.

Methods
The age of the dataset needs to be acknowledged as a limitation of the study - practice may have substantially changed over later years.
To the best of my knowledge, flavoxate has minimal, if any AM potential
Propantheline and hyocyamine are not usually used for OAB - there are other indications for its use - seldom used these days
Solifenacin has an M3:M1 selectivity of 12:1 - hardly selective
Otherwise the methods are clearly explained and coherent the analysis is appropriate.

Results
Table 1 is quite extensive and difficult to grasp. The text helps clarify the meaning of the results but perhaps highlighting those variables for which there is a significant difference in proportions between groups might help?
The other tables are wieldy but self explanatory

Discussion
The discussion is limited - could the authors please hypothesise why they found the disease related factors they did? Is there a plausible mechanism or were their findings simply random associations founded upon multiple comparisons? What significance do the authors place uun the...
The fact that 40% or so of the prescribed population was recorded to be continent? Why do the authors feel that catheter use predicted BAM use in females? What explanation can the authors offer for the association between benzodiazepine use and BAM prescription, for example?

Overall, the paper lacks a clinical perspective - ads written it is merely a host of observations with little explanatory value. Other than the influence of geography and policy, there is little to inform the reader except the "so, what?" factor.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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