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LETTERS TO THE EDITOR

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Comments on the Anticholinergic Burden Calculator Web Tool

Comentarios sobre la herramienta web *Anticholinergic Burden Calculator*

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Dear Editor:

We have read with interest the letter of Villalba-Moreno *et al.*¹ that your journal published in 2017. The authors should be commended for the development of the Anticholinergic Burden Calculator Web Tool, a valuable contribution that will raise awareness of the risks of using antimuscarinic drugs worldwide.

The calculator (available at: <https://www.anticholinergicscales.es>, and accessed on 28/5/2019) is based on ten different anticholinergic scales identified in a systematic review². Drugs included and rating of anticholinergic effect given differ widely across different published lists. This inconsistency was first highlighted back in 2013 in a study carried out in a medium- and long-stay psychiatric hospital, where poor agreement among them was shown³. Later that year, our team outlined the importance of adapting scales to local settings and updating data to include new drugs⁴. In the reference section of the Anticholinergic Burden Calculator, the authors mention an update of the Anticholinergic Drug Scale (ADS) in 2013, but as far as we are concerned, the list, created in the United States (USA) in 2006, hasn't been updated. Curiously, some of the examples we used in

2013 (biperiden, fesoterodin, solifenacin) appear in the calculator citing the ADS scale. But these drugs were not considered in the original publication⁵. Biperiden, for example, is not available in the USA.

We believe the inclusion of biperiden, fesoterodin and solifenacin is a wise choice, as these drugs undoubtedly possess anticholinergic activity. But, if what we believe is confirmed, the reference in the calculator should be corrected.

Developing a consistent, updated and accessible screening tool to measure anticholinergic burden should be a priority for the scientific community. In this sense, we look forward to the improvement of the web tool, adding specific recommendations to help clinicians make better decisions.

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No conflicts of interest.



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Bibliography

1. Villalba-Moreno AM, Alfaro-Lara ER, Sánchez-Fidalgo S, Nieto-Martín MD, Santos-Ramos B. Development of the Anticholinergic Burden Calculator Web Tool. *Farm Hosp.* 2017;41(5):647-8.
2. Villalba-Moreno AM, Alfaro-Lara ER, Pérez-Guerrero MC, Nieto-Martín MD, Santos-Ramos B. Systematic review on the use of anticholinergic scales in poly pathological patients *Arch Gerontol Geriatr.* 2016;62:1-8.
3. Lertxundi U, Domingo-Echaburu S, Ruiz-Osante B, Hernández R, Peral J, Medrano J. Comments on Duran et al.'s systematic review of anticholinergic risk scales. *Eur J Clin Pharmacol.* 2013;69:1729.
4. Lertxundi U, Domingo-Echaburu S, Hernández R, Peral J, Medrano J. Expert-based drug lists to measure anticholinergic burden: similar names, different results. *Psychogeriatrics.* 2013;13:1724.
5. Carnahan RM, Lund BC, Perry PJ, Pollock BG, Culp KR. The Anticholinergic Drug Scale as a measure of drug-related anticholinergic burden: associations with serum anticholinergic activity. *J Clin Pharmacol.* 2006;46:1481-6.

REPLY

Villalba-Moreno AM¹, Alfaro-Lara E², Santos-Ramos B², Sánchez-Fidalgo S³

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Dear Domingo-Echaburu et al.:

First all, I would like to express my gratitude for your contribution to anticholinergic burden, in your case, for psychiatric patients. Your scientific research is valuable for improving understanding of the variability between anticholinergic scales according to the type of patient studied¹.

We have reviewed your comment about Anticholinergic Drug Scale (ADS) update and you are correct. There was indeed an update of this scale in 2013, but unfortunately, it has not yet been published in the scientific community. Our research group contacted the author of the ADS scale, Ryan Carnahan. He sent us the latest version of the ADS as an attached file with important changes in anticholinergic drugs. We decided to add it to the Anticholinergic Burden Calculator² after the author had given his consent due to the significant changes it makes, such as the inclusion of biperiden, fesoterodin and solifenacin, drugs with high anticholinergic potential. Recommendations to interpret the results obtained with the ADS scale have also been tested/approved. For Carnahan *et al.*, it is important to focus on level 2 and 3 drugs as those with potentially clinically significant anticholinergic properties. They are fairly skeptical of level 1 drugs and the evidence on which those ratings are based. The side-effect profiles do not really suggest anticholinergic effects. Some of the evidence that led to those ratings is inconsistent with more recent studies. For example, Chew and co-

lleagues tested a group of drugs and found that many of the drugs identified as anticholinergic by Larry Tune's earlier work did not have anticholinergic properties for their assays^{3,4}. Tune's work was the basis for many of the level 1 ratings. However, not all of those drugs have been reevaluated. The bottom line is that it is preferable to ignore level 1 drugs unless the preference is to calculate the whole score.

On the other hand, we have the example of the Anticholinergic Cognitive Burden (ACB) scale, which was revised and updated in 2012 with important changes such as the inclusion of fesoterodin and solifenacin with a score of level 3. However, we were not able to include this in the Anticholinergic Burden Calculator for reasons of Copyright⁵.

Finally, we are pleased to inform you that our research group is currently working on a new update of the Anticholinergic Burden Calculator to include specific recommendations for clinicians to facilitate the optimization of pharmacotherapy. In addition, we plan to request express authorization from the authors of ACB to include the 2012 update and offer the information on anticholinergic load as completely and fully updated as possible.

Conflict of interests

No conflict of interest.

Bibliography

1. Lertxundi U, Domingo-Echaburu S, Hernández R, Peral J, Medrano J. Expert-based drug lists to measure anticholinergic burden: similar names, different results. *Psychogeriatrics.* 2013;13(1):1724.
2. Carnahan RM, Lund BC, Perry PJ, Pollock BG, Culp KR. The Anticholinergic Drug Scale as a measure of drug-related anticholinergic burden: associations with serum anticholinergic activity. *J Clin Pharmacol.* 2006;46(12):1481-6.
3. Chew ML, Mulsant BH, Pollock BG, Lehman ME, Greenspan A, Mahmoud RA, *et al.* Anticholinergic activity of 107 medications commonly used by older adults. *J Am Geriatr Soc.* 2008;56(7):1333-41.
4. Tune L. Anticholinergic effects of medication in elderly patients. *J Clin Psychiatry.* 2001;62:11-4.
5. Regenstrief Institute, Inc. Aging Brain Care. Anticholinergic Cognitive Burden Scale. 2012 Update; [Internet] 2012 [accessed 19/7/2019]. Available at: <https://psnc.org.uk/lancashire-lpc/wp-content/uploads/sites/97/2014/02/Anticholinergic-burden-scale-2012.pdf>