Anticholinergic Burden in Care Homes: The Impact of Pharmacist Intervention

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Background
Anticholinergic burden is the cumulative effect of receiving multiple medicines with potential anticholinergic effect. Numerous studies have now shown links between an older person’s anticholinergic burden and negative health outcomes such as increased falls risk, poorer cognitive function, functional decline, institutionalization and all-cause mortality.1, 3, 4, 5

Objectives

• To examine the prevalence of anticholinergic burden in selected care homes within the Northern Health and Social Care Trust.
• To consider possible predictors of anticholinergic burden in care homes.
• To examine the impact of pharmacists’ medication reviews on anticholinergic burden in care homes.

Methods
Four care homes, previously recruited to the Northern Health and Social Care Trust Nursing Home Outreach Project service development programme, were selected at random. All residents (≥65 years) from the four selected care homes who had received a medication review by a pharmacist as part of the service development programme were included in the study. Retrospective analysis of pharmacists’ medication review records for all included residents (n=245) was carried out. The Anticholinergic Cognitive Burden (ACB) scale6 was used to calculate ACB score at baseline, after pharmacists’ recommendations and after uptake of pharmacists’ recommendations by the general practitioner (GP). Table 1 shows common examples of drugs appearing on the ACB scale and their scores.

Table 1: Common Examples of Drugs that Appear on the ACB Scale and their scores

<table>
<thead>
<tr>
<th>Examples of Drugs carrying ACB score of 1</th>
<th>Examples of Drugs carrying ACB score of 2</th>
<th>Examples of Drugs carrying ACB score of 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codeine</td>
<td>Carbamazepine</td>
<td>Quetiapine</td>
</tr>
<tr>
<td>Diazepam</td>
<td>Amantadine</td>
<td>Amipiptoline</td>
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<tr>
<td>Furosemide</td>
<td>Osecarbazepine</td>
<td>Chlorphenamine</td>
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<tr>
<td>Digoxin</td>
<td>Fevastestine</td>
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</tr>
<tr>
<td>Catrizine</td>
<td>Oncytobutyn</td>
<td></td>
</tr>
<tr>
<td>Ranitidine</td>
<td>Pantoprotine</td>
<td></td>
</tr>
<tr>
<td>Risperidone</td>
<td>Solfenacin</td>
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</table>

This study found that 80% of residents were prescribed at least one medication with anticholinergic effect while 26% of residents were prescribed more than two. Age may have had an independent association with anticholinergic burden as the mean number of drugs with anticholinergic effect and the mean ACB score decreased with age. Of the recommendations made by pharmacists, 87% were implemented by the resident’s GP. Ultimately, 86 residents had less drugs with anticholinergic effect prescribed after pharmacists’ interventions, 0 residents had more drugs with anticholinergic effect prescribed after pharmacists’ interventions and 159 residents remained unchanged. Figure 1 shows the impact of pharmacists’ interventions on number of drugs with anticholinergic effect prescribed.

In the same way, 86 residents had a lower ACB score after pharmacists’ interventions, 0 residents had a greater ACB score after pharmacists’ intervention and 159 residents remained unchanged. Figure 2 shows the impact of pharmacists’ interventions on ACB score.

A Wilcoxon signed-rank test determined that pharmacists’ interventions elicited a statistically significant decrease in median number of anticholinergic drugs prescribed (z=-8.505, p<.001) and median ACB score (z=-8.275, p<.001).

Conclusion
Medication reviews carried out by clinical pharmacists working as part of the Northern Trust Nursing Home Outreach Project led to a reduction in the anticholinergic burden of care home residents.

References
2. Bostock, CV. Soiza, RL. Mangoni, AA. (2013) Associations between different measures of anticholinergic drug exposure and Barthel Index in older hospitalised patients.Therapeutic Advances in Drug Safety. 4:235-45
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