RESEARCH ARTICLE

A study evaluating the Deprescribing Guideline on Anticholinergic Drugs in a long-term care facility in Malta

Dr Gloria MONTEBELLO, Dr Kelsey MARKHAM, Dr Melanie DEBONO and Dr Patrick BARBARA

ABSTRACT

Background

This study synthesizes the 'Deprescribing Guideline: Anticholinergic Drugs' from Mater Dei Hospital in Malta, emphasizing the critical role of medication choice in minimizing side effects for elderly patients, particularly those experiencing polypharmacy. The guideline employs the Anticholinergic Burden (ACB) score, with a cumulative score of 3+ correlating with elevated cognitive impairment and mortality. Polypharmacy, often linked to confusion and increased morbidity in the elderly, necessitates a proactive approach to medication management. The guideline recommends alternative medications with reduced anticholinergic side effects and prompts clinicians to review treatment charts.

Objective

To identify treatment charts with an ACB score exceeding 2 and assess adherence to the guideline.

Method

Data was collected retrospectively and all treatment charts valid in June 2023 were evaluated within the New Block at the long-term care facility St Vincent De Paul Residence (SVPR).

Results

The findings revealed a notable prevalence of such charts, highlighting the imperative to address the anticholinergic burden in elderly patients. Evaluation of adherence indicated room for improvement in implementing deprescribing strategies.

Conclusion

This study underscores the significance of the Mater Dei Hospital guideline in optimizing medication regimens for elderly individuals, advocating for a proactive approach to enhance patient outcomes and reduce associated risks.

Key Words

Anticholinergic, deprescribing, elderly, patients, polypharmacy

BACKGROUND

The 'Deprescribing Guideline: Anticholinergic Drugs' issued by Mater Dei Hospital (MDH), Malta's government general hospital, highlights the need to increase awareness regarding the choice of medication keeping the side effect profile in mind (Clinical Practice Guidelines, 2023). The guideline uses the Anticholinergic Burden (ACB) score to quantify the anticholinergic effect of drugs on elderly patients, especially those with polypharmacy. A higher cumulative score (3+) is associated with increased cognitive impairment and mortality.

Good prescribing practices include deprescribing as an integral concept of patient care. Deprescribing should be encouraged to eliminate expected adverse drug reactions, limit polypharmacy, especially in the comorbid population, and also to align treatment plans with the team's goals of care and life expectancy (Krishnaswami et al, 2019).

Polypharmacy is associated with confusion, dizziness and increased morbidity rates, especially in the older population. The Deprescribing Guideline on Anticholinergic Drugs provides alternative medications that carry a decreased anticholinergic side effect profile and encourages clinicians to review treatment charts accordingly. The guideline highlights common drugs carrying an ACB score of 2.

Objective

This study aimed to identify treatment charts with an ACB score of >2. If the score was >2, adherence to the guideline was checked by seeing whether an attempt to decrease medication dose, an attempt to change medication, and an attempt to stop medication within the past 3 months were being carried out.

METHOD

All treatment charts valid in June 2023 within the government long-term care facility for the elderly, St Vincent De Paul Residence's (SVPR) New Block were evaluated. A Microsoft Excel® sheet was created to input the data collected systematically. After authorisation was obtained, data was collected anonymously from medical notes and treatment charts. Note was made of treatment plans carrying an ACB score of >2. The ACB calculator was used to work out the individual ACB carried by each drug and to calculate the cumulative score of each chart. The ACB Calculator is a validated tool for assessing ACB. The National Institute for Health and Care Excellence (NICE) states that there is sufficient evidence to recommend the score over other tools (Lisibach et al., 2020). Data collection included:

- The ward name and number of patients in the ward;
- The date of admission to SVPR;
- The patient's age and gender;
- Medications prescribed mentioned in the Deprescribing Guideline: Anticholinergic Drugs, and their respective ACB scores;
- The frequency and dosage of the medications mentioned above;
- The overall cumulative score of the medications when summed up together;
- Whether an attempt to reduce the dose, change the medication, or stop the medication was done;
- The indication for the medication;
- The date of the last psychiatric review.

The guideline indicates that for scores of >2, there should be an attempt to reduce the dose or change to an alternative medication. This was taken into consideration by noting whether a psychiatry review was done in the last three months and whether any changes made were documented. In other instances, at times the firm taking care of the ward made the necessary dose reductions or changes; however, the indication for the modification was not written. The aim was always to reduce the anticholinergic side effect burden.

The date of admission was recorded to distinguish between patients who have been recently admitted (e.g. less than a month), as opposed to patients who have been residents for longer, to evaluate whether this affects deprescribing patterns.

Before the commencement of data collection, authorization was granted with the permission and support of the medical superintendent / data protection office at St. Vincent de Paul. Since the research did not involve any contact or clinical assessments of patients, no permissions were sought from the Mental Health Commissioner or the Health Ethics Committee. All data was collected and analysed anonymously. All data was discarded once data interpretation was complete.

RESULTS

All treatment charts of patients were reviewed and included in this analysis, with a total of 502 patient treatment charts from 16 different wards. Three of these are closed wards that are dedicated to patients with advanced dementia with behavioural and psychological symptoms of dementia (BPSD). The other thirteen wards are open wards with residents having mixed diagnoses.

One hundred and sixty-nine patient treatment charts out of the 502 (34%) had at least one medication with an ACB score of >2. Only 25 out of the 169 charts (15%) had an attempt to change treatment, as seen in Table 1. Twenty-nine percent of all treatment charts had at least 1 medication with an ACB score >2 and no attempt to change medications.

Table 1: Number of patients with an ACB score of >2, with an attempt to change medication

Gender	Number of patients	Number of attempts to change the medication	Percentage change
Female	114	16	14%
Male	55	9	16%
Total	169	25	15%

Most ACB medications that were adjusted are used to target depression, behavioural and psychological symptoms of dementia (BPSD), and difficult behaviour cases, as seen in Table 2. In the majority of patients, difficult behaviour is secondary to advanced dementia. This may reflect the progress of the condition with a response to medication. In 6 patients, no diagnosis or specified condition was mentioned in the file although treatment was being given. Out of the 169 treatment charts with an ACB >2, only 32 patients (19%) had a psychiatric review in the previous 3 months.

Table 2: Indication for medications and the number of treatment charts with an attempt to change or stop medications

Diagnosis	Number of patients	Treatment charts with an attempt to change or stop medications	Percentage change
Difficult behaviour	55	8	15%
Depression	52	10	19%
BPSD	9	1	11%
Schizophrenia	7	1	14%
Dementia	5	1	20%
Anxiety	5	1	20%
Paranoia	3	2	67%
Neuropathic pain	3	0	0%
Delusions	2	0	0%
Suicidality	2	0	0%
Alcoholism	2	0	0%
No diagnosis	5	0	0%

DISCUSSION

This study highlighted the deprescribing practices of medications that have a high anti-cholinergic side effect burden at SVPR's New Block. These findings and analysis can also be applied to all aspects of medical care as deprescribing is the role of every practitioner to prevent adverse effects of polypharmacy such as in primary care when caring for elderly patients.

Many medications such as tricyclic anti-depressants, anti-psychotics, anti-histamines, and anti-emetics have anticholinergic side effects, in addition to other common side effects (Tay, Soiza, and Mangoni, 2014). These medications are prescribed daily on a geriatric ward and hence out of 502 charts, 169 (34%) had a drug with an ACB score greater than 2, indicating a significant prevalence of side effect burden. In this case, the most common indications for anticholinergic prescribing were behaviour difficulties associated with BPSD, depression, and anxiety.

Anticholinergic drugs can affect both the central nervous system (CNS) and peripheral nervous system (PNS). If the CNS is affected, this may be evident by worsening cognitive function, a rapid increase in neurodegenerative processes, new onset psychotic or confusional symptoms, and functionality disturbances. Moreover, if the PNS is affected, symptoms may include a dry mouth, urinary retention, constipation, paralytic ileus, tachycardia and visual disturbance (López-Álvarez, Sevilla-Llewellyn-Jones and Agüera-Ortiz, 2019).

The relevance of this data is also supported by the findings in a study done by Pfistermeister et al. which concluded that there is a positive association between total anticholinergic cognitive burden and cognitive impairment in patients hospitalized in geriatric wards (Pfistermeister et al., 2017).

Medication availability as well as the cost of medications can pose challenges in practice. Some medications are not available on the national formulary and thus, the clinician is not able to prescribe certain medications, which in turn leads to prescribing a substitute which might not be the best treatment option for the patient when considering their side-effect profiles.

Moreover, many medications frequently prescribed for older adults are often not acknowledged for their anticholinergic effects. Consequently, clinicians typically prescribe these drugs based on their expected therapeutic advantages, neglecting to consider the potential risk of accumulating anticholinergic burden.

Regular medication reviews and providing education are common interventions that can help reduce the anticholinergic burden. Education can therefore help to deliver specific information regarding prescribing practices for elderly patients, errors associated with medications, and strategies aimed at preventing medication-related errors (Salahudeen et al., 2022).

In primary care, some of the challenges that may arise regarding deprescribing medications include a lack of continuity of care, time limitations during consultations, apprehension regarding the repercussions of reducing medication particularly concerning anticholinergic burden, and the intricacy of deprescribing interventions across various drug categories. Additionally, there is a reluctance among healthcare providers to reduce medication if it was initially prescribed by another clinician (Braithwaite et al., 2023).

Limitations

The data collected for this study was limited to a single hospital, SVPR, which affects the generalizability of the findings to a broader population. Additionally, many of the treated conditions are chronic, making treatment discontinuation a significant challenge. The psychiatric department also faces an overload of work, limiting the availability of staff for patient reviews. Moreover, when deprescribing or switching to a safer alternative medication was attempted, the reasons for these changes were not documented in the patient's notes.

Recommendations

Based on the results, the following recommendations are proposed to improve clinical practice:

- To include a deprescribing exercise as a routine practice. Deprescribing has to be done with caution since certain mental states can pose a high risk to oneself and others.
- To identify the clinical reason for each prescribed drug (e.g. Table 2). This is helpful when discussing patients across specialties and also when it comes to deprescribing.
- In some conditions such as BPSD, alternative modes of treatment should be attempted for example non-pharmacological approaches. These include psychoeducation of ward staff and targeting the ward environment.
- Prescribed medications should be reviewed regularly and attempts to withdraw medications, especially with a high ACB, should be a priority by the caring firm.
- Deprescribing in severe mental illness should be done carefully, slowly, and in discussion with the patient and their responsible carers. In conditions such as schizophrenia and also depression, severe anxiety, and obsessive-compulsive disorder (OCD), deprescribing could be dangerous due to a high incidence of relapse.
- A careful review of the patient's psychiatric history should be done and involvement of a psychiatrist is highly recommended.
- To monitor interactions between psychiatric and non-psychiatric medications. Such overprescribed medications were found to be prescribed in the as needed (PRN) section e.g. prochlorperazine, codeine and hydroxyzine. These interactions should be targeted before deprescribing.
- To increase awareness and education regarding anticholinergic side effects on the elderly.

- To update the national formulary with medications that have a better side effect profile.
- To clearly document whether deprescribing or switching to another safer medication was attempted, and to document the reason for such changes.
- As this is the first cycle of the study, a second cycle is required to evaluate whether the recommended changes have been implemented.

CONCLUSION

Anticholinergic medications are widely prescribed in older adults, but their benefits must be greater than their risk of causing unnecessary adverse events, especially in this vulnerable age group. If possible, when there is a high ACB score, the medication's dose must be reduced, or the drug altered to another medication with less anticholinergic burden. Moreover, specialist psychiatry input must be sought to ensure the older adult is followed up and the necessary deprescribing is carried out.

REFERENCES

Braithwaite, E., Todd, O.M., Atkin, A., Hulatt, R., Tadrous, R., Alldred, D.P., Pirmohamed, M., Walker, L., Lawton, R. and Clegg, A., 2023. Interventions for reducing anticholinergic medication burden in older adults—a systematic review and meta-analysis. ***Age and Ageing***, 52(9). doi:10.1093/ageing/afad176.

Clinical Practice Guidelines, Mater Dei Hospital, 2023. Deprescribing Guideline - Anticholinergic Drugs. ***CPG guidelines.*** Available at: <https://govmt.sharepoint.com/sites/cpgmdh/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2Fcpgmdh%2FShared%20Documents%2FGeriatrics%2FDeprescribing%20Guideline%20%2D%20Anticholinergic%20Drugs%2Epdf&parent=%2Fsites%2Fcpgmdh%2FShared%20Documents%2FGeriatrics> [Accessed: 17 October 2024].

Krishnaswami, A., Steinman, M.A., Goyal, P., Zullo, A.R., Anderson, T.S., Birtcher, K.K., Goodlin, S.J., Maurer, M.S., Alexander, K.P., Rich, M.W. and Tjia, J., 2019. Deprescribing in older adults with cardiovascular disease. ***Journal of the American College of Cardiology***, 73(20), pp. 2584–2595. doi:10.1016/j.jacc.2019.03.467.

Lisibach, A., Benelli, V., Ceppi, M.G., Waldner-Knogler, K., Csajka, C. and Lutters, M., 2020. Quality of anticholinergic burden scales and their impact on clinical outcomes: a systematic review. ***European Journal of Clinical Pharmacology***, 77(2), pp.147–162. doi:https://doi.org/10.1007/s00228-020-02994-x.

López-Álvarez, J., Sevilla-Llewellyn-Jones, J. and Agüera-Ortiz, L., 2019. Anticholinergic drugs in geriatric psychopharmacology. ***Frontiers in Neuroscience***, 13. doi:10.3389/fnins.2019.01309.

Pfistermeister, B., Tümena, T., Gaßmann, K.G., Maas, R. and Fromm, M.F., 2017. Anticholinergic burden and cognitive function in a large German cohort of hospitalized geriatric patients. ***PLoS One***, 12(2). doi:10.1371/journal.pone.0171353.

Salahudeen, M.S., Alfahmi, A., Farooq, A., Akhtar, M., Ajaz, S., Alotaibi, S., Faiz, M. and Ali, S., 2022. Effectiveness of interventions to improve the anticholinergic prescribing practice in older adults: A systematic review. ***Journal of Clinical Medicine***, 11(3), p. 714. doi:10.3390/jcm11030714.

Tay, H.S., Soiza, R.L. and Mangoni, A.A., 2014. Minimizing anticholinergic drug prescribing in older hospitalized patients: A full audit cycle. ***Therapeutic Advances in Drug Safety***, 5(3), pp. 121–128. doi:10.1177/2042098614523638.

Dr Gloria MONTEBELLO
DHS, MD (Melit), Diploma in Management
Basic Specialist Trainee in Psychiatry, Mount Carmel Hospital, Malta
Email: gloria.montebello@gov.mt

Dr Kelsey MARKHAM
MD (Melit), Diploma in Family Medicine (Buckingham)
GP Trainee, Primary HealthCare, Malta
Email: kelsey.markham.2@gov.mt

Dr Melanie DEBONO
MD, MRCP, MRCP Geriatrics, Diploma in Internal Medicine (Edinburgh), Diploma in Medicine of the Older Adult
Resident Specialist in Geriatrics, St. Vincent De Paul Residence, Malta
Email: melanie.a.debono@gov.mt

Dr Patrick BARBARA
MD, B. Psychology (Hons), M.Ger.
Consultant Psychiatrist, Mount Carmel Hospital, Malta
Email: patrick.b.barbara@gov.mt