

Despite receiving a decision support message when prescribing medicines with a high AEC score, prescribers' acceptance rates were low, resulting in ongoing prescribing.

Prescribing of medicines with high anticholinergic burden in Wales

Introduction

Evidence suggests that drugs with anticholinergic effects are associated with an increased risk of cognitive impairment mortality and falls in older people^{1,2}, as well as a link to dementia³.

The Anticholinergic Effect on Cognition (AEC) scale⁴ assigns drugs a score from 0 to 3; the higher the score, the greater the anticholinergic effect and increased likelihood of causing cognitive impairment.

A patient treated with drugs with an AEC score of 3 or above (either through use of a single high scoring drug, or combined use of drugs with lower scores) should be reviewed to assess the risk and benefit of ongoing treatment.

In 2017/2018 a National Prescribing Safety Indicator (NPSI) was introduced in Wales with the aim of reducing anticholinergic use in patients aged 75 years and over. The NPSI reports the number of patients with an AEC score of 3 or more in general practice.

The aims of the study were to explore:

1. the number of times drugs with an AEC score of 3 were prescribed for adults aged 75 years and over
2. the drugs most commonly prescribed
3. the action taken by prescribers.

Methods

OptimiseRx, a prescribing decision support system, triggers alert messages to appear at the point of prescribing.

OptimiseRx and the All Wales Therapeutics and Toxicology Centre developed alert messages for prescribers to support the NPSI.

The message alerted prescribers when a single drug with a score of 3 on the AEC burden scale was prescribed to a patient aged 75 years and over:

Anticholinergics: review use of anticholinergic effect on cognition (AEC) score 3 medications in patients aged 75 years and over

Prescribing a high anticholinergic effect on cognition (AEC) drug may increase risk of harm in patients aged 75 years and over

This is supported by an AWMMSG - National Prescribing Safety Indicator (2022-23)

The number of times this alert was triggered, and the drugs responsible for triggering it were collected, along with the subsequent action of the prescriber (to accept or reject the alert).

Data were obtained from general practices using the OptimiseRx prescribing decision support software in two health boards in Wales between April 2022 and March 2023.

References:

1. Fox C, Richardson K, Maidment I et al. Anticholinergic medication use and cognitive impairment in the older population: the medical research council cognitive function and ageing study. *J Am Geriatr Soc.* 2011;59(8):1477-1483. <https://doi.org/10.1111/j.1532-5415.2011.03491.x>
2. Bishara D. Anticholinergic action is rarely a good thing. *Ther Adv Psychopharmacol.* 2023; 13:1-8. <https://doi.org/10.1177/20451253231195264>
3. Gray S, Anderson M, Dublin S et al. Cumulative Use of Strong Anticholinergics and Incident Dementia. A Prospective Cohort Study. *JAMA Intern Med.* 2015;175(3):401-407.
4. Bishara D, Harwood D, Sauer J et al. Anticholinergic effect on cognition (AEC) of drugs commonly used in older people. *International Journal of Geriatric Psychiatry.* 2016;32(6):650-656. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/gps.4507/full>
5. Suga T, Thi Huyen Tu T, Watanabe M, et al. Low-dose amitriptyline: A potential therapeutic option for chronic pain in older people. *Br J Clin Pharmacol.* 2025;91:921-922

Results

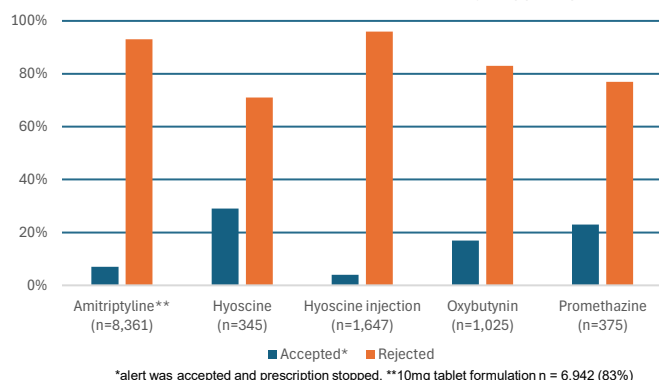
During the 12-month study period, the alert was triggered 12,540 times.

Four medicines triggered the alert 11,753 (94%) times. For these medicines, the alert was rejected by the prescriber 91% of the time (see Figure).

Alert acceptance was lower for amitriptyline 7% (n=608) vs other non-injectable drugs 21% (n=366) (p<0.001 Chi-square test; OR=0.3; 95% CI=0.25-0.34).

Alert acceptance was lower for injectable 4% (n=73) vs non-injectable hyoscine 29% (n=99) (p<0.001 Chi-square test; OR=0.12; 95% CI=0.08-0.16).

Prescriber decision for medicines most commonly triggering the alert



Discussion

Overall, acceptance rates for the decision support message were low, resulting in ongoing prescribing of drugs with a high AEC score.

Amitriptyline most commonly triggered the alert message. Although the total daily dose for individual patients could not be determined, use of the 10mg tablet formulation accounted for the majority of instances with this drug (83%). Whilst caution is required, this may represent a relatively safe treatment option for chronic pain in this population⁵ and this may have resulted in the alert being more frequently rejected compared to other non-injectable drugs.

The alert message was more frequently rejected for injectable formulations of hyoscine compared to other formulations. This may reflect appropriate use in a palliative care setting.

Despite being made aware of the high AEC burden score, prescribers may have had limited time during a typical consultation to assess the ongoing risk to the patient, or may have assessed the benefit to outweigh the risk of the drug, resulting in treatment continuation.

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