Research Round up December 2023

Prescribing Cascades

Introduction

Last month the research round-up provided you with an overview of articles looking at prescribing in various aspects of cancer care. This month we will review three articles looking at the issue of prescribing cascades. The first article looks at known and potential prescribing cascades after the initiation of statin therapy. The second article looks at prescribing cascades in the elderly with type 2 diabetes. Finally, we look at continuation of potassium supplementation in the elderly following discontinuation of loop diuretics.

High-throughput screening for prescribing cascades among real world statin initiators

S M. Vouri, E J. Morris, M Walsh, J Agalliu, A Dempsey, L Hochleitner, M R. Muschett, S Schmidt, CJ. Pepine, S M. Smith (2023) *High-throughput screening for prescribing cascades among real world statin initiators* Pharmacoepidemiology and drug safety 32:7: 705-816

https://onlinelibrary.wiley.com/doi/abs/10.1002/pds.5607

This research, published in the Journal of Pharmacoepidemiology and drug safety sough to implement a high-throughput signal detection program, using a sequence symmetry analysis to identify potential statin-related prescribing cascades. It is known that statins are one of the most prescribed drugs with known associated adverse events which can lead to additional medications being prescribed and be the start of a prescribing cascade. The researchers obtained their data for inclusion from insurance databases in the USA and looked at records between 2005 and 2012 inclusive. The team used high-throughput analysis to assess timings of drug initiation of the statin and then compare with initiation of other medications that may be considered as secondary markers. Inclusion was patients aged 20 or over at commencement of statin and who had taken them for greater that 720 days. This yielded 2 265 519 individuals who had been commenced on statins in the study period. Demographic analysis revealed that there was a mean age of 56.4 years with 48.7% being female. Of the cohort 7.5% had identified cardiovascular disease and simvastatin was the most commonly prescribed drug with atorvastatin a close second. The analysis revealed 160 significant signals with 35.6% of those classified as potential prescribing cascades relating to the statin. Some of the cascades identified were previously known buy some potentially new cascades were identified based on previously unknown adverse events. The commonest cascades included osmotic laxatives, opioid and non-opioid analgesics and the first-generation cephalosporin antimicrobials. The authors feel their findings could be used to generate discussion in clinical practice of the risk versus benefits of continued statin therapy in light of the initiation of potentially unnecessary medications.

Deprescribing, Polypharmacy and Prescribing Cascades in Older People with Type 2 Diabetes: A Focused Review

E Hickman, C Gillies, K Khunti & S Seidu (2023) *Deprescribing, Polypharmacy and Prescribing Cascades in Older People with Type 2 Diabetes: A Focused Review*

https://link.springer.com/article/10.1007/s41745-022-00352-7

This article, published in the Journal of the Indian Institute of Science looked at the combined issues of prescribing cascades and polypharmacy. The population of interest were the older adult with type 2 diabetes and there was the view to looking at incidences of deprescribing in this population. This narrative review sought to discuss the process and topic of deprescribing. The article discussed the benefits and risks of employing a deprescribing strategy as well as looking at barriers and enables to such a strategy. The main focus would be on unnecessary or preventative medications, or those prescribed to treat possible or actual adverse reactions. This was with the idea to review long term impacts of such additional medications. The authors acknowledge that polypharmacy itself is an issue, especially in their chosen population. Although known reduction of polypharmacy leads to reduction of adverse reactions and can improve not only patient satisfaction and quality of life it can also be cost saving. That said the authors highlight some possible harms when reducing the number of drugs including an increase in complications relating to initial medication, re-emergence of previously subsided effects and lost of patient centred prescribing focus. They suggest that any intervention regarding polypharmacy should be individually patient focussed and that the process of deprescribing and reduction of prescribing cascades could be of great benefit to their target population of older adults with type 2 diabetes. No blanket approach should be used but a focus on interventions that improve the quality of life in the persons later years.

Continued potassium supplementation use following loop diuretic discontinuation in older adults: An evaluation of a prescribing cascade relic

G Hsin-Min Wang , E J. Morris, S M. Smith, J Hallas , S M. Vouri (2023) *Continued potassium supplementation use following loop diuretic discontinuation in older adults: An evaluation of a prescribing cascade relic* Journal of the American geriatrics Society 71:2: 505-515

https://agsjournals.onlinelibrary.wiley.com/doi/abs/10.1111/jgs.18103

This article published in the Journal of the American Geriatrics Society was the result of a study first presented at the 38th International Conference for Pharmacoepidemiology. The article starts by outlining the extent of prescribing cascades in modern clinical practice and identifying common culprit drug classes before focussing on the issue of continued potassium supplementation after loop diuretic discontinuation. Data was obtained form Medicare insurance services for the Florida state area between 2011 and 2018 with analysis using sequence symmetry. Inclusion was adults over the age of 66 who had been started on loop diuretics between 2011 and 2018. Individuals with prescriptions for potassium supplementation to treat simple hypokalaemia were excluded so only people who had the potassium supplement started within a specific period (180 days) after diuretic initiation were captured. In total 284,369 participants met the eligibility criteria. Most patients were being treated for hypertension (90.3%) and the most common diuretic was furosemide. The patients

identified were 8 times more likely to received potassium supplementation simultaneous to or soon after loop diuretic initiation. Of that cohort, 66,451 who were on diuretic and potassium prescription, 20,445 remained on the potassium even after the discontinuation of the loop diuretic so the potassium was a relic of the former prescription. Additionally, 9395 patients refilled their potassium prescription again after the estimated diuretic discontinuation date. The evidence also showed that the probability of the relic prescription was highest after 90 days. Other factors were associated with the relic prescription and included older age, female sex and higher diuretic doses.

The authors suggest their findings highlight the need for clinicians to be more aware of the potential for relic prescribing when reviewing medications.

Conclusion

Prescribing cascades are an increasing area of prescribing concern with the prescriber having to balance decision making with the risks and benefits of prescribing additional medications. Some medications are more likely to lead to a prescribing cascade with that list including diuretics, statins, opioids and gabapentinoids. However many more medications have the potential to trigger a prescribing cascade and prescribers should routinely review medications for the patients they prescribe for.