Prescribing of inappropriate medication in patients with limited life expectancy: a prospective study in a specialist palliative care unit

Todd A[1], Nazar H[2], Andrew I[3], Baker L[3] and Husband A[1]

1. Division of Pharmacy, School of Medicine, Pharmacy and Health, Durham University.
2. Department of Pharmacy, Health and Well-being, Faculty of Applied Science, University of Sunderland.
3. St. Benedict's hospice, Monkwearmouth hospital, Sunderland.

Background

For patients with limited life expectancy – typically surviving for less than one year – polypharmacy is very common because medication is prescribed to manage acute symptoms associated with the life limiting illness (e.g. cancer) and to treat or prevent other long-term conditions (e.g. cardiovascular disease). As a consequence, this polypharmacy is linked with an increased risk of developing a drug-related toxicity due to the potential of drug-drug or drug-disease interactions. This risk is further heightened in patients with limited life expectancy owing to their unique and dynamic pharmacokinetic and pharmacodynamic parameters (e.g. variation in volume of distribution or altered drug excretion due to declining renal and/or hepatic function). In view of the potential for polypharmacy to cause harm in patients with limited life expectancy, it is essential to optimize patients' medication to align with therapeutic goals and life expectancy. To date, however, there is a growing body of evidence that suggests inappropriate medication continues to be prescribed to patients with limited life expectancy.

Objectives

The objectives of this work was to:
1. Assess the prevalence of inappropriate medication use in patients attending a day care centre in a specialist palliative care unit; and,
2. Identify any potential theoretical drug-drug interactions in this patient group using drug interaction recognition software.

Methods

This was a prospective study that gathered data from December 2012 until February 2013. The medication histories for patients attending a day care centre within a specialist palliative care unit were accessed along with their medical history. Medication was assessed for appropriateness using the conceptual framework described by Holmes and colleagues [1] for patients with limited life expectancy. The following factors were considered when deciding on medication appropriateness: remaining life expectancy of the patient, time until benefit of the treatment, goals of care and treatment targets. Consensus was reached via Delphi methodology using a range of clinical pharmacists and consultants in palliative medicine. Drug interactions were identified and assessed according to significance using the drug interaction recognition software, Proscript®. Drug interactions identified as significant were then further sub-classified as moderate or severe based upon the potential to cause harm or hospitalization, if they were reversible or irreversible and, finally, if any treatment would be required to manage the drug interaction. This work was registered as an audit with the Trust and thus ethics approval was not required.

Results

A total of 66 patients were assessed during the study period, 62 had cancer, 1 congestive heart failure, 2 severe chronic obstructive pulmonary disease and 1

Parkinson's disease. In total, the number of medications taken was 715 (mean per patient, 11; range 1 to 21). Using the conceptual framework as a guide, from the 715 medicines assessed, 101 (15 per cent) were considered to be inappropriate given the patients' limited life expectancy. Out of the 66 patients assessed, 44 (67 per cent) were taking at least one inappropriate medication. The most common medication considered inappropriate were the statins that were prescribed in 16 patients (24 per cent). Other common inappropriate medications were aspirin in 11 patients (17 per cent), calcium supplements in 10 patients (15 per cent) and ACE inhibitors in 10 patients (15 per cent).

The drug interaction recognition software identified a total of 104 potential drug interactions occurring in 39 patients (59 per cent): 54 were considered non-significant, while 50 were classified as significant. Among those identified as significant, 43 were considered moderate while 7 were considered severe. In our study, discontinuing inappropriate medicine would prevent 22 non-significant, 12 moderate and 4 severe potential drug interactions. Among patients identified as having a potential drug interaction, discontinuing inappropriate medication would prevent at least one potential drug interaction in 18 patients (46 per cent). The most frequent major potential drug interaction that could be prevented by discontinuing inappropriate medication was between simvastatin (> 40 mg OD) and amlodipine, a well-defined drug interaction, which increases the risk of myopathy; this was identified in three patients. Another major potential drug interaction that could be prevented was identified between haloperidol and quinine sulphate, an interaction that increases the risk of developing torsade de pointes – a serious ventricular tachycardia.

Discussion
Our results show that the majority of people accessing the day care centre in a specialist palliative care unit are using many inappropriate medications in view of their life limiting illness. These inappropriate medications contribute to potential drug interactions and thereby increase the risk of a patient developing a drug-related toxicty. Our findings are in agreement with the literature and build upon our previous work that showed patients with advanced lung cancer take many inappropriate medications – some of which can potentially interact with chemotherapy potentially causing negative outcomes for patients.[2]

In view of these findings, there is potential for pharmacists to become involved in the review of patients with limited life expectancy to faciliate discontinuing inappropriate medication. However, unlike discontinuing medicines in elderly patients – where the STOPP-START [3] and Beers criteria [4] can be used – there is a lack of appropriate guidance for discontinuing inappropriate medication in patients with limited life expectancy. The framework used in this study is highly conceptual and does not neccesarily lend its application to a busy clinical environment. Further guidance is thus required to assist clincans in decision-making around discontinuing inappropriate medication in patients with limited life expectancy.

Conclusions
Patients who accessed the day care center in the specialist palliative care unit take many inappropriate medications in view of their limited life expectancy. These medications not only increase the pill burden for the patient but also increase the possibility of developing a drug related toxicity. These patients should have their medications reviewed in the context of their original therapeutic goals taking into account their life-limiting diagnosis.

References

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