

Unnecessary Medications in Hospice Patients: Retrospective Chart Review from a Hospice in Ohio

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Abstract

Aim: Unnecessary medications are defined as medications that provide no benefit in terms of survival, quality of life, or symptom control for this particular population. However, there is limited data available to guide as to which medications are appropriate to be prescribed. This study focuses on the use of unnecessary medications in hospice patients, using standards of practice in palliative care. **Materials and methods:** This was a retrospective study involving chart review of hospice patients. Descriptive and inferential statistics were conducted. Data was analyzed using SPSS version 24. **Result:** 53 chart reviews were conducted. 62% of the study population was taking atleast one unnecessary medication. Vitamins/minerals were the most frequently prescribed unnecessary medications. **Conclusion:** Results of this study suggest that hospice patients were on medications that did not provide any therapeutic benefit. By identifying unnecessary medications in this population, the economic burden on healthcare costs and the adverse events associated with these medications can be significantly reduced.

Key words: Unnecessary medications, Hospice, Life expectancy, Palliative care.

INTRODUCTION

Increasing evidence^[1] shows that the need for hospice industry has rapidly expanded. According to 2007's *Last Rights: Rescuing the End of Life from the Medical System*, hospice sites are expanding at a national rate of about 3.5% per year. In 2007 1.4 million people in the United States utilized hospice, with more than one-third of Americans in end-stage life utilizing the service. Managing medication regimen that provide therapeutic benefit for patients at the end of life is challenging. Physicians and pharmacists should use a systematic process to review patients' medication regimens frequently to evaluate the appropriateness of each medication which involves not only initiating of new medications but also the discontinuation of existing medications. Clinicians should consider the patient's life expectancy, time until benefit of a drug, goal of care, treatment targets, and the potential risks and benefits of medications during the medication review process.^[2]

In 2008, Medicare alone, which pays for 80% of hospice treatment, paid \$10 billion to the 4,000 Medicare-certified providers in the United States. Unnecessary medications that provide no benefit in terms of survival, quality of life, or symptom control for hospice patients who have less than six months to live is one of the major causes of economic burden on healthcare costs. Unnecessary medications account for a large number of hospice admissions and contribute billions of dollars in healthcare costs annually.^[3] Some of the most common medications that drive the cost of our healthcare spending are statins and vitamins/minerals.

Research involving unnecessary medications in hospice patients is necessary as it contributes to rising healthcare costs and adverse drug events in hospice patients. An association between unnecessary medications and increasing

adverse drug events has been previously supported as well.^[4] Adverse events are those that produce an undesirable response to a drug in a patient. Managing medication regimen that provide therapeutic benefit for hospice patients with limited life expectancy is a challenging process. A review of medications by physicians and pharmacists for their appropriateness can help determine which new medications should be initiated and which existing medications should be discontinued. Hence, the purpose of this paper is to focus on unnecessary medications that do not provide any therapeutic benefit to patients in hospice setting with reduced life expectancy.

MATERIALS AND METHODS

The study design was a retrospective, cohort study. A hospice facility in Ohio provided patient charts to be analyzed. Patient chart reviews were conducted in June 2012. The data was collected and entered in Excel by a single individual. It was analyzed by the same individual. The accuracy of the charts was verified by a separate person. Descriptive statistics such as mean, median, and mode were used as appropriate. Data obtained from the patient charts was used to conduct a two-tailed Fisher's exact test to determine the statistical significance of this study. A p-value < 0.05 was considered statistically significant. SigmaStat SPSS version 24 was used for analysis of the data.

IRB approval by the University of Findlay was obtained prior to the start of reviewing charts; patient consent was not necessary because no direct patient contact occurred. The categorization provided by the Center for Medicare and Medicaid Services was utilized in defining what constitutes unnecessary drugs for the purpose of this study. In short, medications with a dose in excess, medications lacking a sufficient indication, medications that are not

monitored adequately, medications prescribed for an extended period of time duplicate therapy, medications that require a dose decrease due to adverse effects, or any combination of the aforementioned categories.^[5]

RESULTS

There were 53 patient charts included in this study. For the primary endpoint, the Table below shows that 33 of 53 patients were taking at least one unnecessary medication (62.26%; 95% CI 0.4878 – 0.7409; P=0.589). Figure 1 shows the number of patients within each age group who were taking at least one unnecessary medication regardless of drug class (52.83%; 95% CI 0.6562 – 0.6562; P=0.066). Figure 2 shows the quantity of unnecessary medications by drug class and age group (56.2%; 95% CI 0.4730 – 0.6471; P=0.324). The alpha value was set to <0.05, therefore the p-values were not statistically significant.

DISCUSSION

The most prevalent unnecessary medications found in this study for adults over the age of 80 were vitamins/minerals and statins. It was found that the number of patients over 80 with unnecessary medications was nearly double that of patients without unnecessary medications.

Mursu *et al* conducted a well-designed study that reported the increase in the risk of death with the prolonged use of vitamin supplements.^[6,7] The researchers also reported that long term use of calcium and vitamin D were associated with increased survival.^[6] These findings contradict a

meta-analysis of randomized trials which shows a correlation between calcium supplementation and increased risk of myocardial infarction.^[8] An observational study also reported an increase in coronary heart disease in Finnish postmenopausal women using calcium supplements by 24%.^[9] As the hospice population is typically elderly, it is understandable that many female patients would be taking calcium supplements for brittle bone diseases such as osteoporosis. Physicians and pharmacists can help to make patients aware of the potential benefits and risks associated with supplementation. A systematic review process is critical in the hospice population, especially given the conflicting data.

As many hospice patients are in the end stages of life, this requires a certain amount of financial obligation. As of May 1, 2014, CMS requires a prior authorization (PA) process for all medications that patients entering hospice care are currently using. If approved through the PA process, the hospice is responsible for the drugs that are related to the terminal illness; although, the beneficiary may incur some of the cost of medication if the hospice deems it related to the illness but not medically necessary.^[5] This process can be especially difficult when the patient is receiving medication orders from multiple prescribers (i.e. attending and on-call physicians, nurse practitioners, and primary care physicians). This can increase the chance of patients receiving unnecessary medications.^[10] Essentially because of the PA process many new hospice patients go through, it can potentially prevent adverse drug events by reconciling past medications and rendering a list of medications that are both related to the terminal illness, as well as are medically necessary.

A common goal for hospice facilities, is utilizing medications that are able to aid the individual in their end-of-life ailments. Maddison *et al*, found that when running a literature search through various databases (e.g. Medline, Embase, and CINAHL), the focus was less on preventative/curative medicine and more on palliative care. The goal of this literature review was to improve medication use and decrease polypharmacy in end-of-life individuals.^[11] A source of this issue could be a protocol-based prescribing practice.

Many physicians and clinical pharmacist emphasize a guideline-driven approach to care. This can mean prescribing medication that has an intended purpose of reaching a disease-specific target. When a patient enters a long-term care facility, at times it is protocol to place them on certain medications as prophylaxis. The necessity of medications that are guideline appropriate is questionable once a patient reaches a certain age and/or whether they are at the end of their life. Holmes *et al* has developed the Medication Appropriateness Index that can identify the overprescribing of medications to elderly patients based on indication, interactions, and other parameters.^[2] This tool can be used as a guide to appropriately prescribe in the elderly.^[2]

The limitations of our study included the smaller than expected number of patient charts analyzed. The data only contains 53 subjects, which has the potential to affect the primary outcome results. Also, the distribution of age between the three groups was not proportional and lacks generalizability.

CONCLUSION

An association was not found between the use of unnecessary medications and the age group in these particular hospice patients. Future studies should include a larger sample size, patient ages should be evenly distributed, and a wider range of therapeutic classes of medications should be studied to determine the use of unnecessary medications in hospice patients. Increased awareness is needed among healthcare professionals about the use of unnecessary medications that contribute to rising healthcare costs and adverse drug events in hospice patients.

Table 1: Endpoint Results

	Statins	Vitamins/Minerals	Other
<60 (total 5 patients)	0	1	2
60-80 (total 16 patients)	3	14	1
>80 (total 32 patients)	4	36	8

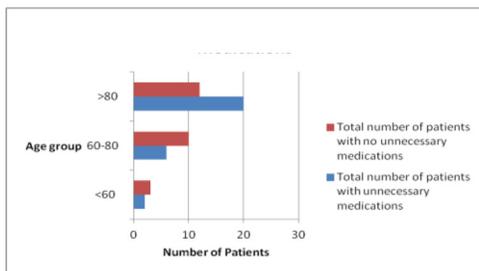


Figure 1: Number of Patients with Unnecessary Medications

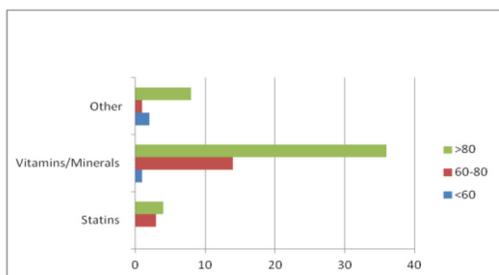


Figure 2: Number of Unnecessary Medications by Drug Class and Age group

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CONFLICT OF INTEREST

There are no conflict of interest.

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