EVALUATION OF PHARMACIST CLINICAL RECOMMENDATIONS IN A GERIATRIC HOSPITAL

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ABSTRACT

OBJECTIVES This study was undertaken to record the number and type of recommendations made by pharmacists reviewing the drug treatment of older patients, to note acceptance of these recommendations by physicians and to assess clinical significance of pharmacist recommendations.

METHOD Three pharmacists providing inpatient services at Zammit Clapp Hospital were asked to record specific details of all recommendations given using a designed documentation form. The clinical impact of the pharmacists' recommendations was assessed by the pharmacists making the recommendations together with a panel of two independent pharmacists and a medical doctor who had to rate the contribution of each recommendation as major, moderate, minor or of no clinical significance.

KEY FINDINGS A total of 263 valid pharmacist recommendations were documented. The most frequent recommendations, accounting for 20.5% (n=54) of the total number of recommendations were adjustment to dosage, frequency and time of administration followed by discontinuation of a medication. The majority of recommendations were accepted by physicians (80%) and were rated by the panel to be of moderate (60.5%) clinical significance.

CONCLUSION Clinical pharmacists make a number of recommendations of significant clinical benefit to the care of hospitalised elderly patients, the majority of which are accepted by physicians.

KEYWORDS Interventions, Geriatric Pharmacy, Hospital Pharmacy, Clinical Pharmacy

INTRODUCTION

The pharmacist has a knowledge of the optimal use of medications and the ability to influence physician prescribing.[1] Studies have shown that interventions by hospital pharmacists are effective in reducing medication errors, improving patient health outcomes and decreasing both costs and length of stay.[2-4] Significant and clinically important results can be achieved by pharmacists reviewing the drug treatment of older patients who are being hospitalised.[5]

This study aimed to quantify and evaluate the impact of recommendations made by pharmacists at Zammit Clapp Hospital, a 60-bed hospital targeted for the treatment and rehabilitation of patients sixty years of age and older. The objectives of this study were to: record the number and type of recommendations made, note acceptance of the recommendations by physicians and assess the clinical significance of recommendations.

METHOD

DOCUMENTATION FORM

A documentation form was designed to standardise the recording of recommendations. It was created by combining aspects of other data sheets used in previous studies.[6-8] The documentation form consisted of two parts: the first section for recording information including patient age and gender, the primary reason for admission and the patient's number of chronic medications. The other section was created for describing the pharmacist recommendation, the drugs involved and to document whether the recommendation was accepted by the physicians.

PILOT STUDY

The documentation form and the study design were piloted in one ward for two weeks. Minor changes in wording and content were made to the form, which was then used throughout the study.

DATA COLLECTION

During the actual study, each of the three pharmacists providing inpatient services at the hospital was asked to record specific details of all recommendations during a specified 12-week period. For the purposes of this study, the definition of a recommendation was "Any proactive or reactive activity made with the intent of improving patient management or therapy, involving the application of the pharmacist's knowledge to a specific patient or physician order".[7, 9-11]

ASSESSMENT OF CLINICAL SIGNIFICANCE

The clinical impact of the pharmacists' recommendations was assessed by the intervening pharmacist and a panel which consisted of two other clinical pharmacists and a medical doctor. All three evaluators were independently provided with the documentation forms. Evaluators had to rate the contribution of each recommendation as either major, moderate, minor or of no clinical significance. At least two of the three evaluators had to agree on the degree of significance of the recommendation. This gave rise to a single panel rating for each recommendation which was termed 'the average significance'.

STATISTICAL ANALYSES

The documentation forms were coded and entered onto a Microsoft Office Excel 2007 spreadsheet to quantify and analyse the data. The data was then transferred to SPSS 15.0 to perform statistical evaluations and cross tabulations. The scores of the pharmacists coding their own recommendations, the physician and the evaluator pharmacists were compared using the paired-sample Student t-test.

Results

A total of 263 valid pharmacist recommendations to 158 different patients were made during the study period. Some patients required more than one recommendation: (a mean of 1.7 recommendations were made per patient). The nature of recommendations is shown in Table 1.

ACCEPTANCE RATES

Of the 263 recommendations, 80 per cent were accepted by physicians (n=211), 16 per cent were not accepted (n=43) and 3 per cent could not be evaluated for acceptance (n=9). Pharmacist recommendations classified as 'Recommendation of monitoring' had the highest percentage of accepted recommendations (93.3%) (n=245). The highest percentage of unaccepted recommendations was for the addition of a new medication (30.4%) (n=80).

SIGNIFICANCE

The majority of recommendations (60.5%) were rated to have provided an average significance in the moderate level (n=159), followed by recommendations of minor significance (35.4%) (n=93). Recommendations that were judged to have made a major contribution to the quality of patient care comprised 3% of recommendations (n=8). A relatively small percentage of recommendations (1.1%) (n=3) were judged to be of no clinical significance.

STATISTICAL ANALYSES

There was no difference in the mean significance ranking scores between the two evaluator pharmacists (P=0.48; paired t-test). When the average significance of both evaluator pharmacists was compared with that attributed by the pharmacists coding their own recommendations, a significant difference resulted, (P<0.001; paired t-test) with the latter attributing higher significance than the evaluator pharmacists. The physician rated the highest percentage of recommendations as minor. This resulted in a poor agreement between the physician and the evaluator pharmacists in their assessment of the significance of recommendations (P<0.001; paired t-test). Overall, both the evaluator pharmacists and pharmacists coding their own recommendations rated the clinical significance of the recommendations higher than the physician.

"Clinical pharmacists make a number of recommendations of significant clinical benefit to the care of hospitalised elderly patients"

DISCUSSION

Adjustments of dosage, frequency and time of administration were the commonest reasons for pharmacist recommendations, followed by discontinuation of a medication. Thirty seven per cent (n=97) of the recommendations in these two categories featured central nervous system drugs, including benzodiazepines, antipsychotics and tricyclic antidepressants. The risks with these medications, enhanced by their concomitant use, are sedation, increased tendency to falls (and thus risks of fractures) and anticholinergic adverse effects, which are especially relevant in the older patient. The importance of these two categories can be interpreted in the light of polypharmacy, adverse drug reactions and decreased adherence to treatment in the elderly population.

Physicians accepted advice on most of the recommendations proposed by pharmacists (80%), which confirms that pharmacists input is needed for high-quality care and that the pharmacists' approach of therapy matched the practice adopted by the physicians. Of the unaccepted recommendations, reasons for not being accepted might be that a patient's medication would have been commenced by a specialist and the physician would be reluctant to override another specialist's initial prescribing decision,[12] or the physician might not consider the recommendation a priority. Physicians would also sometimes know that patients would object to a change in their medications since they may have previously attempted and failed the strategy recommended by the pharmacist.

The physician generally rated the recommendations as being of lower clinical relevance than the pharmacist did. This is consistent with findings in other studies.[13, 14] However although there was not an agreement on an individual case basis, both the evaluator pharmacists and pharmacists coding their own recommendations believed that overall, the highest percentage of recommendations were of moderate significance.

CONCLUSION

This study provided several important insights. Clinical pharmacists make a number of recommendations that affect the care of hospitalised elderly patients, the majority of which were accepted by physicians and are of moderate clinical significance. Recommendations are aimed at improving quality of care and were judged to be mostly of moderate significance.

References

1. Chapman NRM, Fotis MA, Yarnold PR and Gheorghiade M. Pharmacist interventions to improve the management of coronary artery disease. Am J Health Syst Pharm [serial online]. 2004 [cited 2008 Feb 24];61:2672-8. Available from: http://www.ajhp.org/cgi/reprint/61/24/2672.pdf

2. Fertleman M, Barnett N, Patel T. Improving medication management for patients: the effect of a pharmacist on post-admission ward rounds. Qual Saf Health Care. 2005 [cited 2005 Jun 3]; 14:207-11. Available from: http://www.qhc.bmjjournals.com

3. Kaboli PJ, Hoth AB, McClimon BJ, Schnipper JL. Clinical pharmacists and inpatient medical care. Arch Intern Med [serial online]. 2006 [cited 2008 Dec 1];166:955-64. Available from: http://www.archinte.ama-assn.org/cgi/reprint/166/9/955

4. Krass I, Smith C. Impact of medication regimen reviews performed by community pharmacists for ambulatory patients through liaison with general medical practitioners. Int J Pharm Pract. 2000; 8:111-20.

5. Zermansky AG, Petty DR, Raynor DK, Freemantle N, Vail A and Lowe CJ. Randomised controlled trial of clinical medication review by a pharmacist of elderly patients receiving repeat prescriptions in general practice. BMJ 2001 [cited 2008 Feb 24];323:1-5. Available from: http://www.pubmedcentral.nih.gov/picrender.fcgi?tool=pmcentrez&artid=60673&blobtype=pdf

6. Allenet B, Bedouch P, Rose FX, Escofier L, Roubille R, Charpiat B et al. Validation of an instrument for the documentation of clinical pharmacists' interventions. Pharm World Sci. 2006;28:181-8.

7. Dooley MJ, Allen KM, Doecke CJ, Galbraith KJ, Taylor GR, Bright J et al. A prospective multicentre study of pharmacist initiated changes to drug therapy and patient management in acute care government funded hospitals. Br J Clin Pharmacol [serial online]. 2003 [cited 2008 Feb 13]; 57:513-521. Available from: http://www.blackwellsynergy.com/doi/pdf/10.1046/j.13652125.2003.02029.x

8. Knez L, Laaksonen R, Duggan D, Nijjar R. Evaluation of clinical interventions made by pharmacists in cancer services. Pharm J 2008; 280:277-80.

9. Barber ND, Batty R, Ridout DA. Predicting the rate of physician-accepted interventions by hospital pharmacists in the United Kingdom. Am J Health Syst Pharm [serial online]. 1997 [cited 2008 Feb 13];54(4):397-405. Available from: http://www.ajhp.org/cgi/reprint/54/4/397

10. Donyai P, O'Grady K, Jacklin A, Barber N, Franklin BD. The effects of electronic prescribing on the quality of prescribing. Br J Clin Pharmacol. 2007 [cited 2008 Dec 9];65:230-7. Available from: http://www.pubmedcentral.nih.gov/picrender.fcgi?tool=pmcentrez&artid=2253693&blobtype=pdf

11. Lee AE, Boro MS, Knapp KK, Meier JL, Korman NE. Clinical and economic outcomes of pharmacist recommendations in a Veterans Affairs medical center. Am J Health Syst Pharm [serial online]. 2002 [cited 2008 Feb 13];59(21):2070-77. Available from: http://www.ajhp.org/cgi/reprint/59/21/2070.pdf

12. Wilcock M, Harding G. What do pharmacists think of MURs and do they change prescribed medication? Pharm J 2008; 281:163-7.

13. Bosma L, Jansman FGA, Franken AM, Harting JW, Van den Bemt PMLA. Evaluation of pharmacist clinical interventions in a Dutch hospital setting. Pharm World Sci. 2008;30:31-8.

14. Buurma H, De Smet PAGM, Leufkens HGM, Egberts ACG. Evaluation of the clinical value of pharmacists' modifications of prescription error. Br J Clin Pharmacol. 2004 [cited 2008 Dec 9];58:503-11. Available from: http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1884615&blobtype=pdf

Table 1 Recommendations according to category (n=263)		
Category	*n*	**(%)**
Drug treatment initiated	23	(8.7)
Drug treatment discontinued	32	(12.2)
Recommendation of alternative therapy	21	(8.0)
Adjustment of dose / frequency / time of dose	54	(20.5)
Alteration of the formulation	17	(6.5)
Duration of therapy	31	(11.8)
Recommendation of monitoring	15	(5.7)
Identification of drug interaction / adverse drug event	6	(2.3)
Clarification of order – prescription sheet unclear / error in prescription sheet	20	(7.6)
Provision of drug information	15	(5.7)
Switch from regular to as-required	21	(8.0)
Investigate reason for a drug	5	(1.9)
Other	3	(1.1)