

Research Article



Study on Clinical Pharmacists' Initiated Interventions in Improving Compliance Among Geriatrics Patients

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ABSTRACT

The objective of this study was to identify the various causes of non compliance among geriatric patients and to study the Clinical Pharmacists' initiated interventions in improving compliance. The patients satisfying the inclusion criteria were enrolled from the study centre. All the In patients and Out patients under the department of Geriatrics who are willing to participate, not on any psychiatric medicines and other alternative systems of medicines have been included in the study. All the pertinent data has been obtained from direct patient interview, reviewing case files and assessing electronic medical records. The non-compliance were analysed by Morisky scale. Out of the 267 patients, 27 patients were found to be non compliant to medication. The various causes were patient not taking the drug due to lack of knowledge of medication (32%) and patient forgetting to take the medicine (28%), unaware of the right instructions to use inhalers, insulin (16%), adverse drug reactions (15%), polypharmacy (14.2%). The major intervention we did was patient counseling (66.14%). By our intervention, we were able to fully solve 64.5% of non compliance. Non Compliance or Poor compliance to prescribed medications is a common problem which can have a major impact on the success of routine patient care especially among elderly patient. Clinical pharmacist have a vital role to play in providing patient (medication) counseling that can minimize the issues of non compliance to a great extent. There by they play a vital role in improving quality of life of the patients.

Keywords: Non compliance, Clinical Pharmacists, Intervention.

INTRODUCTION

Noncompliance is defined as a passive failure of a patient to adhere to a prescribed therapeutic regimen and it has a profound effect on patient and doctor-patient relationship and interactions, plans of care and healthcare system¹. Noncompliance includes failure to initially fill prescription, failing to refill prescription as directed, omitting a dose, over dose, prematurely discontinuing medication, taking dose at wrong time, taking drug prescribed for another person, taking drug with interacting foods and medications, taking expired and damaged medications, storing medications improperly and using improper medication administration techniques². There are many factors leading to noncompliance which includes **behavioral factors** like social isolation that involves living alone³. A survey on this shows that 35% of individuals over 65 live alone in which majority are women⁴. Other behavioral factors includes social and health beliefs like misconceptions, faulty information and cultural conditioning⁵. Economic conditions are difficult for elderly as they have a fixed income and they pay about 14% or more per prescription than others because of mixed medications and number of doses which is high due to long term therapy⁶. In a population survey they say that 14% of elderly live below poverty line⁷ and some of them have to make a decision between food and medications⁸. **Physiological factors** like sensory impairment in which 54% of partially sighted persons are 65 years old 31 and 46% of functionally blind are 65 years old or more. About

30% of individual of 65 years and older are having hearing impairment⁹. Mobility limits can effect the persons ability to have prescriptions filled and to open and close containers. Type of disease, like in chronic conditions, compliance is worst when the drug is taken preventively, disease is without symptoms¹⁰. Presence of symptoms is another factor governing compliance of medication¹¹. Memory loss is a common factor in elderly and may be caused by prescribed medications¹². Depression is another factor commonly seen in elderly approximately about 15%¹³. Another factor causing noncompliance is **treatment factors** in which there is side effects of medications which accounts about 5-10% in 13 studies¹⁴ and for diseases with no symptoms (hypertension) a medication which cause side effects will increase likelihood of noncompliance¹⁵. Compliance may vary with medication class. Studies have shown that 89% compliance rate for cardiac medicines, 78% compliance rate for insulin and anti diabetic medicines, 72% compliance rate for diuretic medicines, 61% compliance rate for antihypertensives and a 41% compliance rate for sedatives¹⁶. Characteristics of medications like size, color, form of medications can affect compliance¹⁷. Duration of therapy is longer in elderly as they are having higher frequency of chronic conditions and this can also contribute to noncompliance. Complexity of treatment as more medications the worse the compliance¹⁸. **Health care provider/patient interaction** is another and the foremost factor causing noncompliance in which physicians¹⁹ beliefs and attitude towards the elderly can effect their communication with the physicians. In this



interaction the patient must learn and have a set of expectations about the purpose of medication, which medication should be taken, how long it should be taken and the dosing schedule that needs to be followed²⁰. Another problem encountered is the reluctance to ask questions to physicians due to respect for profession, lack of knowledge and anxiety about the medical condition²¹. A survey conducted in American population shows that patients expectations and attitude in patients over 45 years of age showed 69% of patients go first to their physicians when they have doubts about their medications²² and 25% go to their pharmacist. 45% of over 65 age group report that they never ask their doctors or pharmacist²³ any doubt about their medications²⁴.

Solutions to noncompliance are patient education, improving patients organization skills, mailed communications, telephone followup, selfmonitoring, obtaining help from family members and finally simplifying medication regimen by pillboxes, using generic medications, combining drug regimens, once a day dosing and providing written informations.²⁵

METHODS

The study has been conducted prospectively for a period of 6 months in the Geriatric department of Amrita Institute of Medical Sciences (AIMS) & Research Centre, Kochi – 41 which is a 1400 bedded tertiary care referral hospital situated in Kerala, India. Suitable data collection form was designed for the study. The data collection form includes various details of the patient like demographic, disease and treatment related information. The patients satisfying the inclusion criteria were enrolled from the study centre. All the pertinent data has been obtained from direct patient interview, reviewing case files and assessing electronic medical records. The non-compliance were analysed by Morisky scale.

The Morisky Adherence Scale, an update with greater sensitivity of the eight-item scale, considered the most commonly used self-reporting method to determine adherence. The first seven items are dichotomous and the last contains a Likert scale. Six of the eight items address general adherence rather than over a specific time scale and items two and five address adherence over a fortnight and a day respectively. The Morisky-8 produces an overall adherence score which ranges from 1-8, a higher score indicating a greater extent of adherence. The Morisky-8 instrument was excluded if the carer rather than patient took part in the interview, as no carers' version is available. We chose this instrument as it has been developed from a widely used and validated four item scale as well as being validated itself in large sample.

All the In patients and Out patients under the department of Geriatrics who are willing to participate, not on any psychiatric medicines and other alternative systems of medicines have been included in the study. The study has

been conducted after approval from Institutional Review Board of Amrita Institute of Medical Sciences (AIMS) & Research Centre, Kochi, Kerala, India.

RESULT

We have analysed 267 geriatric patients under this study. In this, 256 were outpatients and 11 were inpatients. Among these 127 patients were found to be non compliant to medication.

Table 1: Classification of gender

Sex	Frequency (n=127)	Percentage (%)
Male	60	47.2
Female	67	53

The geriatric patients have been classified into three age groups:

Young-old, old-old and oldest old. The percentage of our study patients who fall under each study group has been mentioned below.

Table 2: Classification of age

Age group	Frequency (n=127)	Percentage (%)
Young-old (65-74)	73	57.4
Old-old (75-84)	52	41
Oldest-old (more than 85)	2	1.5

The mean age of the study group is 73 years ranging from 65 to 87. We have identified that the highest percentage of non compliance patients fall in the age group of 65-74 years. The mean age was found to be 72.8±6.01

Table 3: Classification of diseases in the study population

Disease	Frequency	Percentage(%)
HYPERTENSION	119	93.70
DIABETES	107	84.25
DYSLIPIDEMIA	104	81.88
HYPOTHYROIDISM	79	62.24
ASTHMA	65	51.18
CAD	54	42.51
ANEMIA	27	21.25
STROKE	24	18.89
OSTEOPOROSIS	18	14.17
PARKINSON DISEASE	14	11.02
CHRONIC RENAL FAILURE	9	7.08
COPD	7	5.51



Table 4: Classification of drugs taken by the study population

DRUGS	Frequency	Percentage (%)
Antihypertensives	114	89.76
Oral hypoglycemic agents and insulin	102	80.03
Lipid lowering agent	98	77.16
Calcium supplements	123	96.85
Antiplatelets	78	61.41
Thyroid supplements	79	62.20
Gastro intestinal acting agents	54	42.51
Antiasthmatic`	62	48.81
Sedatives/anxiolytics	30	23.62
Iron supplements	27	21.25
Calcium metabolism modifiers	18	14.17
Corticosteriods	17	13.38
Antiparkinson agents	14	11.02

The non compliance among the 127 geriatric patients were analysed using the Morisky medication adherence rating scale.

Table 5: Classification of non compliant patients according to Morisky scale.

Adherence	Frequency (n=267)	Percentage (%)
High adherence	140	52
Medium adherence	21	7.8
Low adherence	106	40

Table 6: Classification of causes

S. No	Cause	Frequency (n=127)	Percentage (%)
1.	Adverse drug reactions	19	15
2.	Polypharmacy	13	10.23
3.	Lack of knowledge about medication	40	32
4.	Patient unable to use drug / from as directed	20	16
5.	Patient forgets to take drug	35	28

Table 7: Classification of intervention

S. No	Intervention	Frequency (n=163)	Percentage
1.	Patient/ medication counseling provided	84	66.14
2.	Drug changed	18	14.2
3.	Drug stopped	25	20
4.	Spoken to family members / caregivers	36	28

Out of the 127 patients who were found to be non compliant, 84 came for follow.

Table 8: Classification of outcome of intervention

S. No	Outcome of intervention	Frequency (n=127)	Percentage (%)
1.	Unknown outcome	38	30
2.	Fully solved	82	64.5
3.	Partially solved	4	3.1
4.	Not solved	3	2.3

Through the study we have identified that the most common cause of non compliance was patient not taking the drug due to lack of knowledge of medication (32%) and patient forgetting to take the medicine (28%).

Other major causes of non compliance were unaware of the right instructions to use inhalers, insulin (16%), adverse drug reactions (15%), polypharmacy (14.2%).

DISCUSSION

Our study prospectively identified the various reasons for non compliance among the elderly patients who visited the department of Geriatrics during our study period. We have also evaluated the outcome of clinical pharmacists' initiated interventions in improving the compliance among these patients.

Almost half of the patients analysed under this study were found to be non compliant to medication. Through the study, we have concluded that the occurrence of non compliance among inpatients is practically nil. This is mainly because the inpatients are under the strict observation of the healthcare professionals including doctors, nurses and clinical pharmacists.

In the study conducted by S Malhotra²⁹ in 2001 has concluded the main cause of non compliance as cost (27.6%), followed by forgetfulness (21.3%) and side effects (20.0%). But they have not provided any adequate intervention. On the other hand, in our study, the main causes of non compliance were lack of knowledge (32%), forgetfulness (28%) and side effects (15%). With adequate clinical pharmacists' initiated intervention we were able to improve the compliance of 72% of geriatric patients with issues of non compliance.

One of the major factor was lack of education of medicine due to which the patients discontinue drugs on their own. They are not aware of the importance and benefits of completing the regimen. Many times when the patients sees the BP or Blood sugar levels under control they stop taking the drug due to which the levels increases. In this study about 32% of the non compliant patients was due to lack of knowledge of medicine. To these patients, we have provided counseling on the importance of completing the dosage regimen and also information on correct use of drugs including when to take, how to take etc. Out of the 32 patients (80%) who came for follow up

out of the 40, the problem was completely solved in all of them. 8 patients (20%) did not come for follow up.

Also many patients are not aware about the correct instructions on taking Metered Dose Inhaler, Rotahalers, Insulin injections due to which they stop taking them leading to non compliance. This accounts for about 16% of our study subjects. For these patients, we have explained the correct instructions to the patients and in case of inhalers, we also asked them to administer one dose to ensure they have understood our instructions. Out of the 20 patients with this problem, the problem was fully solved in 9 patients (45%). In 11 patients (55%), the outcome was unknown as they did not come for follow up.

Another common problem encountered among the elderly is forgetfulness. In our study 28% of the patients was non compliant because of forgetting to take the drugs. A few of them use to forget taking the drugs due certain disease conditions like anxiety disorders. Also many of the geriatric patients forget when to take a particular drug, whether to take it before food or after food or how many tablets to take etc. For these patients, we as clinical pharmacist provided adequate patient counseling and have observed a significant improvement in the compliance which was observed in the subsequent patient visits to the hospital. In case of patient forgetting to take the drugs, we have also provided counseling to the family members/caregivers. In our study we have provided counseling to 28% of our patient's bystanders. Out of the 35 patients with this problem, in 18 patients (51.42%) the problem was fully solved by our intervention and in 4 patients (11.42%) it was partially solved. In 2 patients (5.71%) the problem was still not solved with our intervention. 11 patients (31.42%) did not come for follow up and hence their outcome was unknown.

In the current study we have provided patient (medication) counseling and have improved the compliance of 66% of such patients.

In a study conducted by Salzman C in 1995, have identified three common forms of drug treatment non compliance found in the elderly are overuse and abuse, forgetting and alternation of schedule and doses. Inappropriate discontinuation may occur in upto 40% of prescribing situations particularly within the first year of chronic care regimen. As many as 10% of elderly people may take drugs prescribed for others. More than 20% may take drugs not currently prescribed by physician²⁶.

We have also observed cases where the patients stop taking drugs because of the fear of occurrence of adverse drug reactions or stopping the drug after the adverse drug reaction has occurred. In this study about 15% of patients stop taking drug due to this reason. The commonly seen adverse drug reaction among these patients were amlodipine induced pedal edema. In a study conducted by Chong reported 18% non compliance related to adverse drug reactions²⁷. While, Levy reported

39% of non compliance they encountered for the same reason²⁸. In our study, 18 patients were non compliant due to adverse drug reactions. Out of these, we as clinical pharmacists, stopped the drug causing the adverse drug reaction in 7 patient and changed the drug to a better tolerating alternative in 11 patients. The problem was completely solved with our intervention in 10 patients (52.63%) and not solved in 1 patient (5.26%). The outcome was unknown in 8 patients (42.10%).

Out of our total study sample, we were able to effectively solve the issues of non compliance in 72% of patients and partially solve in 28%.

On an average these patients consume about 5 to 7 number of medications, which is one of the main reasons as to why they become non compliant to the medications. The polypharmacy could be because of the patients in this age group are associated with a number of comorbidities due to which they have to take a number of medication leading to non compliance. It could also be because they are put on a large number of unnecessary drugs. In our study 13 cases was noncompliant due to polypharmacy. Among these 13 cases, we have identified 5 patients (39%) non compliant due to large number of medicines and 8 patients (61%) of patients non compliant due to increased number of diseases. With our intervention we were able to solve the problem completely in all these patients (100%).

Out of the 127 patients included in the study, 89 came for follow up. In these patients we have found that the problem was completely solved in 82 after giving our intervention.

We were able to conduct the study only for a period of 8 months and so we were able to identify issues of non compliance in only those patients who visited the geriatric department during the study period. In a few patients we were also not able to carry out a follow up as they didn't visit the study period subsequently during the study period. This is a limitation for our study. However we are planning to carried it on further for an extended period of time so as to include more number of patients also.

CONCLUSION

Non Compliance or Poor compliance to prescribed medications is a common problem which can have a major impact on the success of routine patient care especially among elderly patient. This can occur due to various factors including lack of knowledge, forgetfulness, adverse drug reactions, polypharmacy or increased cost of drugs. These issues can be overcome to a great extent by the active intervention of a clinical pharmacist.

Clinical pharmacist have a vital role to play in providing patient (medication) counseling that can minimize the issues of non compliance to a great extent. There by they play a vital role in improving quality of life of the patients.



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