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CLINICAL PHARMACIST INTERVENTION FOR IMPROVING MEDICATION ADHERENCE IN GERIATRIC PATIENTS

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ABSTRACT

Health related problems of elderly need special attention because they face many problems, which include problems related to health, social support and economic insecurity. The aim of the study was to evaluate pharmacist interventions in medication adherence of geriatric patient's. The present study was a prospective interventional study carried over a period of one year and the study was performed in 3 phases such as pre-intervention, intervention and post intervention. The drug therapy details of the patients were collected from pre-rounds, ward rounds with physician and inpatient case records. Pharmacist reviewed the drug therapy, had discussion with patients, took medication history behavior and discussed with physician and suitable suggestions was provided which had been documented. MMAS-8 questionnaire was used in the study to find out medication adherence. During the study period 280 patients data was collected, out of which 58.4% were males and 41.6% were females. The maximum patients were in the age group of 60-70 range (48.4%). Patient counseling was the most interventions in the study. Providing patient counseling, it yields a positive impact on patient compliance and their quality of life. Descriptive analysis, chi-square test and t-test are used in this study for statistical analysis. Outcomes of interventions indicate that almost 80.26% of problems are totally solved by pharmacist's interventions in this study. Pharmacist in geriatric health care has a positive influence on their health outcomes.

KEYWORDS: Geriatrics, medication adherence, intervention.

INTRODUCTION

Geriatric patients had a special attention to take medicines but some factors leads to inconvenience in drug therapy. The factors are; presence of co- morbidities which means long term or chronic disease conditions, poly pharmacy, inappropriate prescribing, poor compliance about medications and medical conditions, self-treatment, availability of non-prescription drugs. Drug use in geriatric patients, is predicted that three out of every four elderly people are taking prescription medications. Geriatric patients had at increased risk for drug induced adverse effects. Drug therapy in older patients is very complex process because of age related changes in pharmacokinetics and pharmacodynamics.

Medication adherence it usually refers to whether patients take their medications as prescribed (e.g.: twice daily or once a day) as well as whether they continue to take a prescribed medication. Adherence is the main issue complicating geriatric drug therapy. Factors that have been shown to increase non adherence include poor relationship with pharmacist, poly pharmacy, living alone, lower socioeconomic status, complicated treatment regimen and multiple disorders. Poor adherence among older persons is one of the public health problems, as it accounts for adverse outcomes, medication wastage with increased cost of health care and substantial worsening of the disease with increased disability or death. Improving medication adherence is a significant aspect in clinical practice & research. Patient education by pharmacist play a significant role in improving medication adherence by making the subjects to understand better regarding the nature of their disease, the importance of treatment, physician's instructions, description about drugs and advice. Medication adherence was tested using the validated eight item Morisky Medication Adherence Scale (MMAS-8). MMAS-8 is an eight item questionnaire with seven yes/no questions while the last question was a five point likert scale13. Based on the scoring system of MMAS, adherence was rated as follows: 0 =high adherence, 1 or 2 = medium adherence and >2 = low adherence.

The pharmacist can provide a valuable contribution in optimized pharmacotherapy in patients with various diseases.

METHODOLOGY

The study was conducted on the inpatient settings of a private tertiary care referral hospital at the Malabar district of Kerala. The study was planned for duration of one

year, among the inpatients of General medicine, Nephrology, Pulmonology, Neurology, Cardiology and Gastroenterology departments. A prospective interventional study conducted over a period of one year among the geriatric patients to find out the medication adherence pattern.

The study was approved by ethics committee of the super speciality hospital and an official consent was provided by the authority for the purpose of conducting the study. Informed consent was prepared and translated in to local language. After informing participants about the purpose of the study, where and how the data would be used, then written consents were obtained.

All the patients from the selected department were monitored during the study period and an inclusion criteria and exclusion criteria were made. The inclusion and exclusion criteria as specified in the protocol submitted to IEC and approved by IEC. Based on inclusion and exclusion criteria patients were included in the study. Inpatients of either sex or Patient age above 60years were included in the study. Paediatrics & adults, Out-patients, Unconscious patients, Surgery department, ICU and psychiatric patients were excluded from the study.

Data collection form, Medication history interview form, and Morisky Medication Adherence Scale 8 (MMAS-8) were used to collect data. Medication adherence was tested using the validated eight item Morisky Medication Adherence Scale (MMAS-8). MMAS-8 is an eight item questionnaire with seven yes/no questions while the last question was a five point likert scale. Based on the scoring system of MMAS, adherence was rated as follows: 0 = high adherence, 1 or 2 = medium adherence and >2 = low adherence.

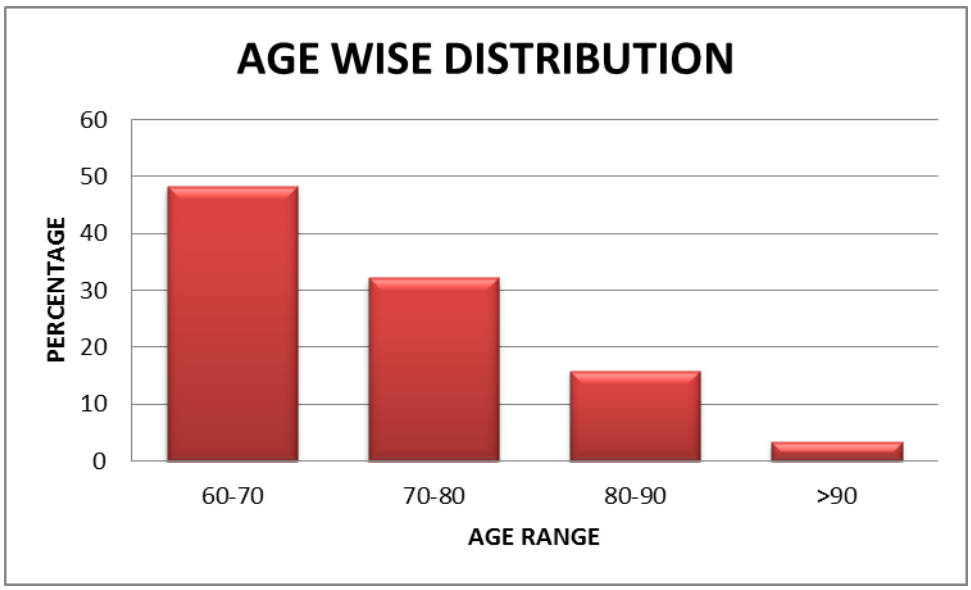
This study was conducted in the inpatients of General medicine, Neurology, Nephrology, Cardiology, Pulmonology, and Gastroenterology departments of the institution and the study was carried out in three phases such as pre-intervention phase, intervention phase and post intervention phase. In the pre-intervention phase, well-designed data collection form was prepared and it was used to understand patient's demographics, habits, vital parameters, laboratory details & current medications. Medication history interview was conducted to know about patients past medical and medication details. In addition, medication adherence of patients was evaluated using

Morisky medication adherence scale-8. In the intervention phase, Patient counseling is one of the important educational tools to improve patient's health outcome. After the patient counseling, pharmacist was checking the patient's medication adherence and necessary steps for improving adherence were provided. The comparison between pre-intervention and post intervention phase was done for assessing geriatric patient's health outcome. All the statistical analysis was carried out using SPSS Version 21.0 (SPSS Inc., Chicago IL, USA). The collected data from 320 subjects were analysed using appropriate statistical tools such as Descriptive analysis, Chi-square test and t-test.

RESULTS

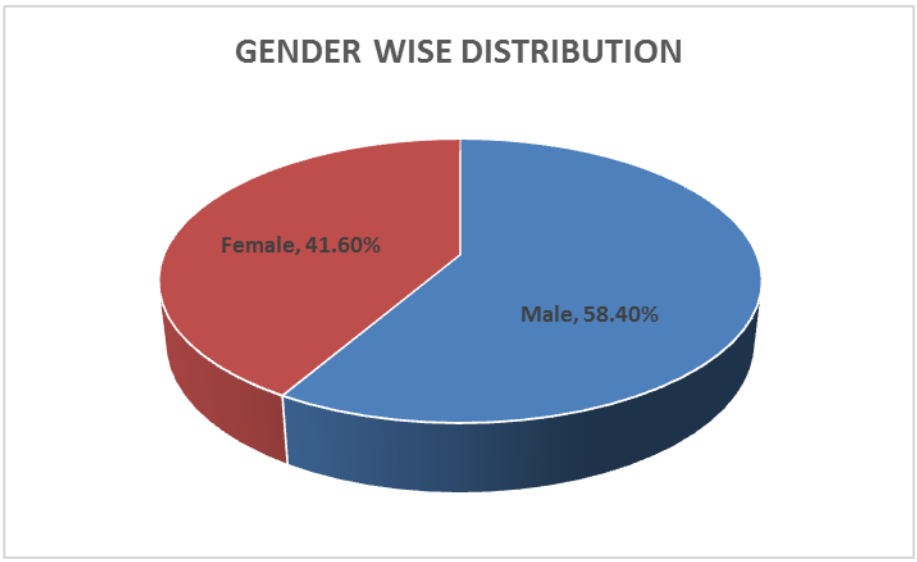
Details of 280 patients were collected during the study period.

1. AGE WISE DISTRIBUTION



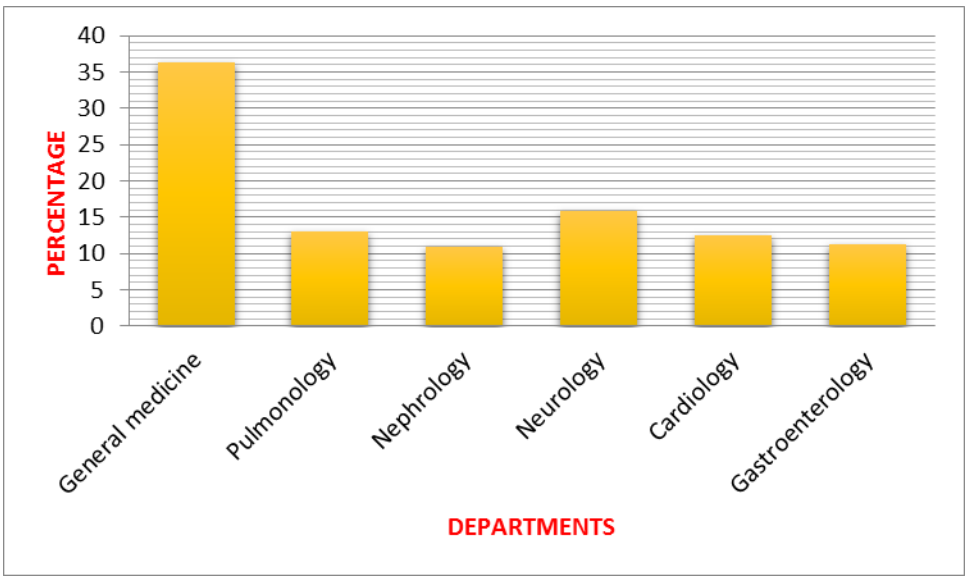
Among the study subjects, the highest number of patients is belonging to the range of 60-70 (48.40%). The least number of patients (3.40%) were found to be in the range of >90. 32.2% was surveyed in 70-80 range and rest of them (15.9%) were observed in the 80-90 range.

2. GENDER WISE DISTRIBUTIONS



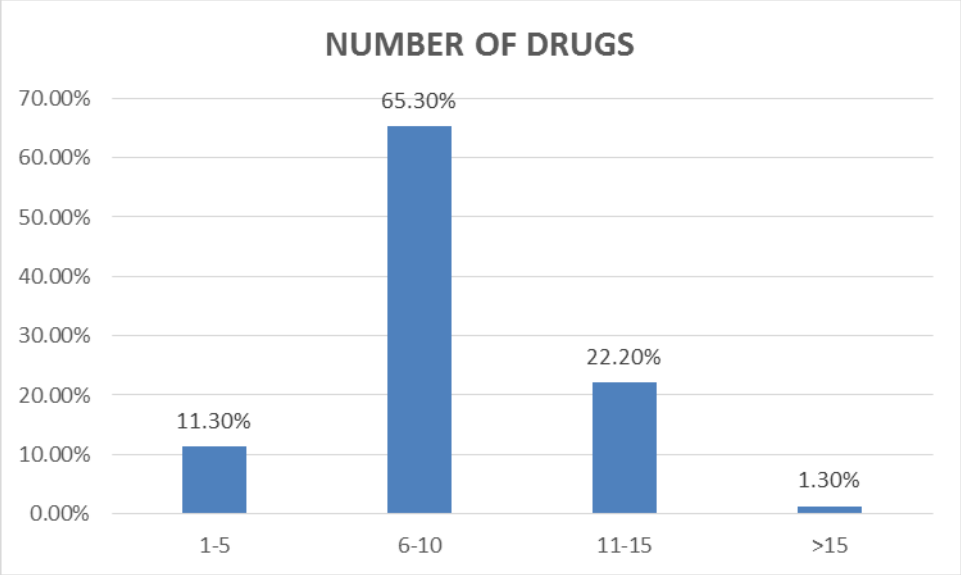
Both male and female patients were included in the study. Higher number of patients were male 187(58.40%), while the rest, 133(41.60%) were female.

3. DEPARTMENT WISE DISTRIBUTION



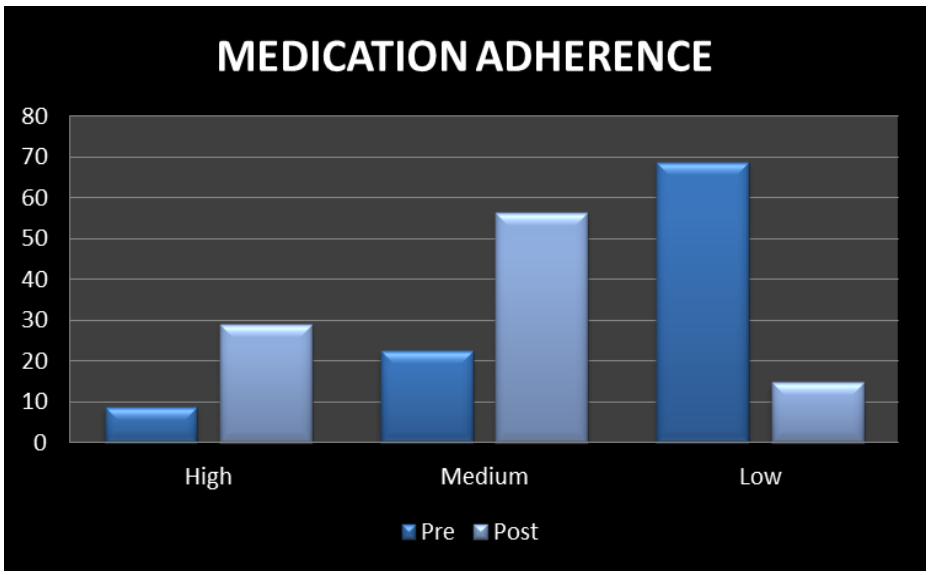
Among the study population, majority of patients admitted in the General medicine (36.03%) and least of them in the Nephrology (10.90%). The remaining patients admitted in the Neurology (15.90%), Pulmonology (13.10%), Cardiology (12.50%) and Gastroenterology (11.30%).

4. NUMBER OF DRUGS



The results showed that, in the study population more number of patients 209(65.3%) were prescribed with 6-10 drugs, 71 (22.2%) patients were prescribed with 11-15 medications, 36 (11.3%) patients were prescribed with 1-5 drugs and more than 15drugs were prescribed in 4 (1.30%) patients. 185 (57.81%) patients were had poly pharmacy and remaining were not noticed with polypharmacy (42.18%).

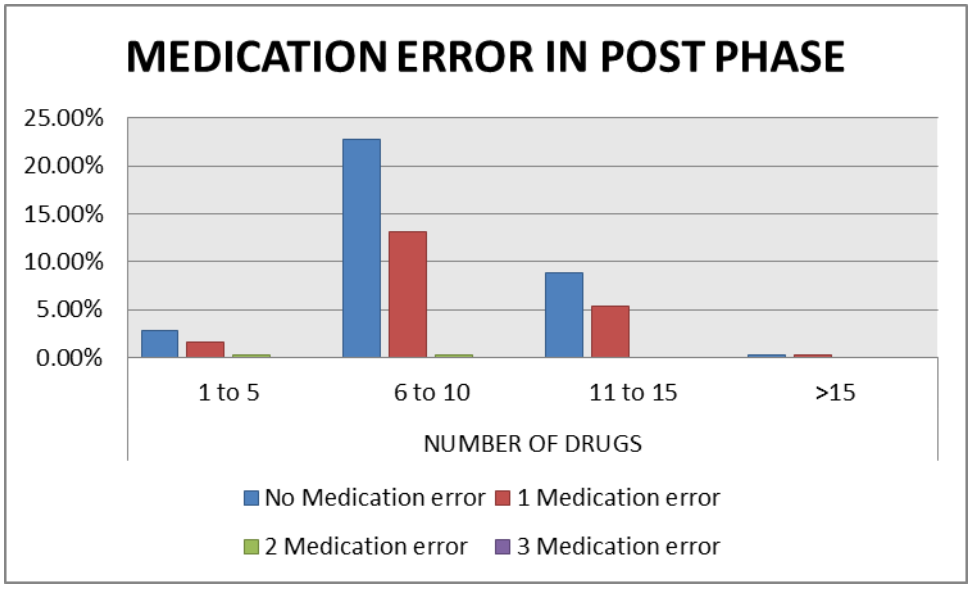
5. MEDICATION ADHERENCE



Medication adherence behavior of the patients was assessed before and after intervention using MMAS-8 questionnaire. Statistically significant improvement was

seen in medication adherence behavior after intervention. In low level adherence there is significant reduction (14.7%) after intervention (P = 0.001).

6. NUMBER OF DRUGS Vs MEDICATION ERROR (POST PHASE)



Comparing number of drugs with medication errors in post intervention phase, the result indicated that a statically significant improvement (χ^2=36.01, P = 0.05) after intervention.

DISCUSSION

The present study was under taken to investigate clinical pharmacist interventions for improving medication adherence in geriatric patients. In this study, majority of the patients (48.4%) belongs to age group 60-70 range, but the study conducted by Mahesh Kumar *et al*., showed that most of the elderly patients in the 60-64 range. The result of study evinces that, males (58.4%) predominant over females (41.6%), RijoMary George *et al*., also reported male (59.4%) predominance over females (40.6%). The patients selected from inpatients of six departments, in this most of the people occupied in the General medicine department (36.3%) and the study conducted by RijoMary George *et al*., also found to be patients from the General medicine department (32.59%) were maximum.

The majority of patients in this study had co-morbid conditions and the most of the geriatric patients were diagnosed as hypertension (532%) and diabetes mellitus (51.87%) and hypertension was highest number comparing with others. The study

conducted by Cristina J Ramirez-Espejel *et al*., also reported most frequent diagnosis was hypertension (71.6%) and followed by diabetes mellitus (54.9%).

The current study reveals that, out of 280 patients 57.81% had poly pharmacy and 42.18% had no poly pharmacy. Kumara Swam *y et al*., showed that, 74.03% had poly pharmacy and 25.95% had no poly pharmacy.

Most of the geriatric patients were not aware of their present medical conditions and about their medications. Because they are not able to remember the information obtained by physician and other health care professionals. This is the one of the reasons for contributing noncompliance and therapy failure in geriatric patients. Medication adherence behavior of patients were analyzed using MMAS-8 scale, in this adherence behavior can be categorized in to three types such as low, medium and high adherence. This study reported that, 8.8% high, 22.5% medium and 68.8% low level adherence. Poor compliance leads to adverse outcome, medication wastage with increased cost of health care and increased disability. After implementation of pharmaceutical care program like patient counseling MMAS-8 score have been changed to 29.1%, 56.3% 14.7%, in high, medium and low adherence respectively. This result showed that pharmacist interventions had positive impact in improving the medication adherence. The result of study conducted by Shruthi R. *et al*., evince that, 45.41% high, 35.45% medium and 19.12% low adherence among study subjects after pharmaceutical activity.

CONCLUSION

This study showed that, Geriatric patients had more chance to drug related problems because of various pharmaco-dynamic and pharmacokinetic changes in their body, co-morbid conditions, poly pharmacy, poor knowledge about their medicines and medical conditions, inappropriate medication use and hoarding of old medicines. This study indicates that pharmacist's intervention is important for improving medication adherence in the geriatric patients. Patient counseling has created a significant change for encouraging adherence to the medications.

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