Original Research Article

Medication error in geriatric population of an urban area and its relation with different factors influencing medication error

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ABSTRACT

Background: Medication errors have been a matter of concern since the time we started using medicines. The frequency of these errors is influenced by a number of factors few of them were pretty obvious and few surprising. Keeping this in mind this research was designed and carried out in geriatric population of an urban area. We tried to evaluate the role of various factors which influence medication error in geriatric population.

Aim and Objective: 1-Primary objective was to estimate the frequency of medication error. 2-Secondary objective was to find out relation of different factors related to medication error.

Study Design and Patient Population: This is a cross sectional study which aims to estimate the frequency of medication error in 250 patients of geriatric age group (Age More Than 65 Years) residing in an urban area and factors related to medication error

For this a questionnaire was prepared which had questions related to demographic details and few questions focused on knowing the factors that could have an influence on medication error. These factors were taken into consideration as per the previous studies which were done on medication error.

It was found that more than 80% of patients thought that medication errors are only those incidents where they use a medication other than what was prescribed to them hence Patients were properly explained what medication error actually is e.g. they were told that even if they take the correct mediation in wrong dose, frequency or duration it accounts for medication error and after this they started recalling incidents when they have faced these errors. There responses were entered into these questionnaire/case record forms which were later analysed.

Statistical Analysis: The data was entered in MS excel and analysed using Epi Info software. The quantitative variables were analysed as frequency. Association between variables was analysed using chi square test. P value <0.05 was considered as significant .

Results: The incidence of medication error was found to be 53% and its frequency was higher in patients with greater number of medications, increasing number of chronic health conditions , while it was lower in patients with higher educational status ,those belonging to lower age groups and if doctor or pharmacist explained the medications to them. surprisingly its frequency was low in patients who could just identify their medication with their health condition.

Conclusion: It was concluded that medication errors are common health related issue in patients of geriatric age group and a number of factors can influence its incidence. If these factors are properly addressed it will have a considerable impact on the morbidity and mortality associated with this problem.

1. Introduction

Each one of us would agree that drug therapy plays a vital role in todays health care system. The complex nature

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of medication prescription and management of medication results in errors which can cause considerable morbidity and mortality for the patient population. Medication errors have been a matter of concern since the time we started using medicines. They can happen during different stages of medication use[1] such as prescribing,[2,3] dispensing,[4] order verification,[5] administration or at the time of consumption of medication and even during the monitoring phase of medication use.

National Coordinating Council for Medication Error Reporting and Prevention defines medication error as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional ,patient or consumer. Such events may be related to professional practice, health care products procedures and systems, including prescribing order communication ,product labeling, packaging and nomenclature, compounding ,dispensing, distribution, administration, education, monitoring and use.[6]

Here it is important to understand that medication error is different from adverse drug events as medication error may not harm the patient but adverse drug events arise from incidents where medication use leads to actual harm to the patient.[7] It would be very beneficial if we could estimate these errors and find out factors which could have an influence on these errors.[8]

But estimating these errors have always been difficult due to a number of factors like fear of being ridiculed if they bring these errors to notice of competent authorities and at times not realizing that an error has been committed by using medication in inappropriate dose, frequency or duration. Also most of the studies focus on errors of commission but neglect errors of omission which falsely leads to decrease in incidence of medication error.[9]

With increase in age number of disease increases which may lead to increase in number of doctors being consulted & can ultimately lead to increase in number of medication being consumed and these all together can result in increased chances of medication error.

2. Ethical Consideration

This research was conducted after obtaining clearance from Institutional Ethics Committee Of Mgm Medical College, Jamshedpur.(REG NO**:**ECR**/**1621**/**INST**/**JH**/**2021) vide reference number –IEC/31/22

A questionnaire was designed for data collection and Collected data was entered in MS excel sheets

2.1. Inclusion criteria

Age >65 yrs

2.2. Exclusion criteria

1. History of mental retardation or dementia
2. Poor vision
3. Requiring palliative or hospice care

3. Plans and Goals

1. Primary objective was to estimate the frequency of medication error.
2. Secondary objective was to find out relation of different factors related to medication error.

This is a cross sectional study which was done in geriatric patients of age more than 65 years attending out patient departments of different doctors in an urban area of mango Jamshedpur. Initially a message with contact details of researcher and eligibility criteria of patients was circulated in whatsapp groups of different societies requesting for calling the researchers if they meet the eligibility criteria so that details can be collected after meeting the patients but a very poor turn up was there , hence we decided to conduct free health camps for geriatric patients and from there patients who fulfilled the inclusion criteria were selected for collection of data .

3.1. Sample size

It was calculated using the formulae
$$n = z^2 \, p \, (1\text{-}p) \, /d^2$$
Where;
n = sample size
z = standard normal value of confidence interval of 95%, that was equal to 1.96
p = estimate of proportion with medication error 0.4
d = margin of sampling error tolerated i.e. precision taken as 0.1

3.2. Comes to around 92 19

In total 122 patients were seen of these 12 patients had poor vision even with correction , 5 had memory impairment, 2 were on chemotherapy and 3 did not consent for study , hence details from 100 patients were collected and entered in case record forms .

4. Analysis of Statistical Data

The data from case record forms were entered in MS excel and analysed using Epi Info software. The quantitative variables were analysed as frequency. Association between variables was analysed using chi square test. P value <0.05 was considered as significant.

5. Results and Discussion

Medication error increased as the age of patients increased In age group 66-70 it was 31%, in 71-75 it was 47%,in 76-

Fig. 1: Gender distribution-There were 58 percent Males and 42 percent females enrolled in this study

Fig. 2: Frequency of medication error-In total 53 percent patients faced medication error
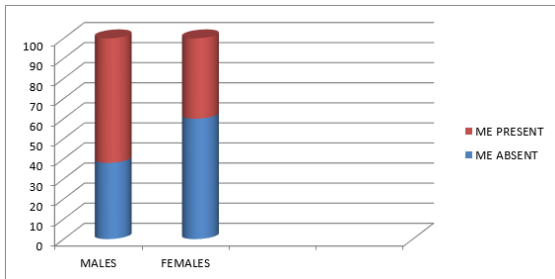

Fig. 3: Medication error according to gender-Medication error was seen in 62 percent males and 40 percent females p value 0.053
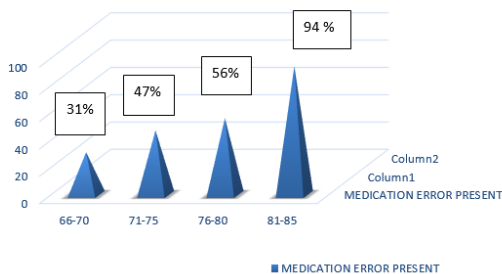

Fig. 4: Medicationerror according to age distribution

80 it was 56% and in age group 81-85 it was 94%.when the data was analysed according to age group 66-75 and 76-85 years the corrected p value was 0.0008
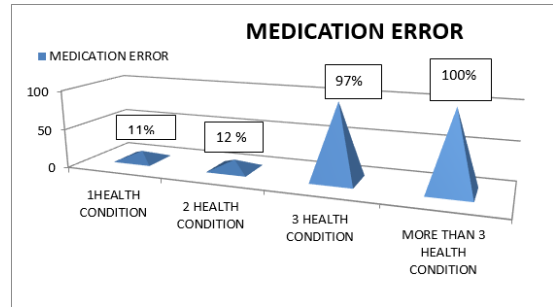
Fig. 5: Medication error according to the number of different chronic health condition patient is suffering from

Medication error was just 11 and 12 percent if the patient had only 1 and 2 chronic health conditions respectively but it increased dramatically to 97 and 100 percent if the patient had 3 or more than 3 health conditions.
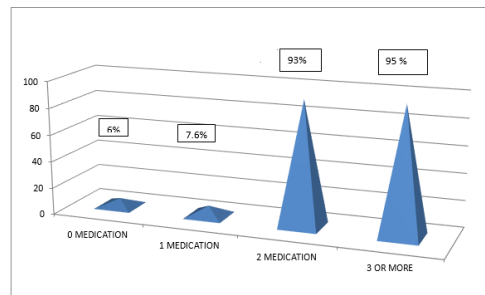

Fig. 6: Medication error according to the number of medicine patient is using regularly- as the number of medication increased percent of medication error increased .If the number of medication was 0 or 1 the percentage of medication error was just 6% and 7.6 % respectively but when the number of medication increased to 2 and 3 or more the percentage increased to 93 and 95 percent respectively.
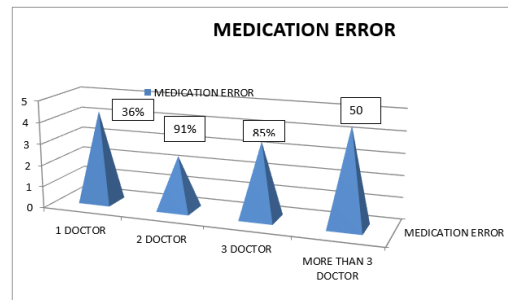

Fig. 7: Medication error according to the number of doctor patient is visiting regularly –No proper relation could be established between number of different doctor visits and medication error
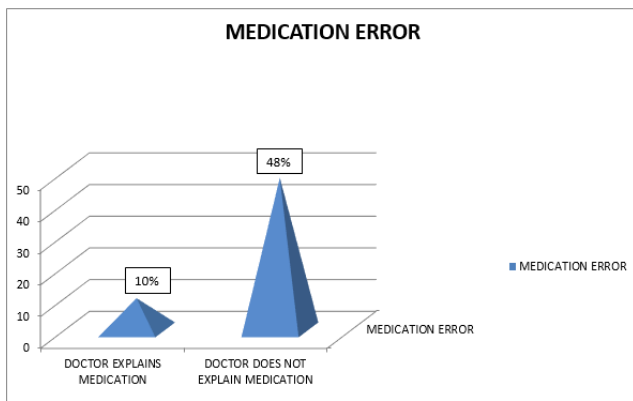
Fig. 8: Medication error if the doctor is explaining medicines-It was found that frequency of medication error decreased if the doctors were explaining medication to their patients and vice versa
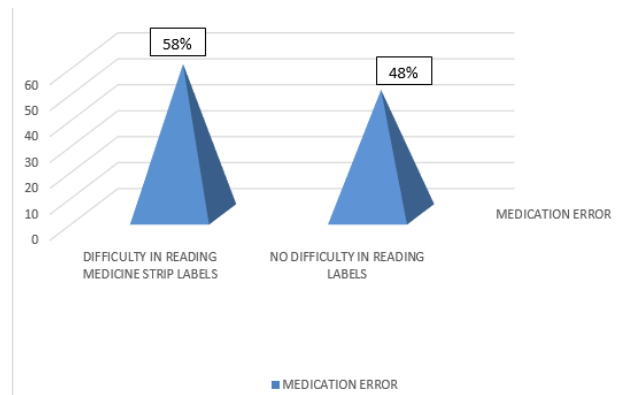

Fig. 9: Medication error if the pharmacist is explaining medicines It was found that frequency of medication error decreased if the pharmacist were explaining medication to their patients and vice versa.

Fig. 10: Does the patient takes medication themselves or needs assisstance-It was found that frequency of medication error was less in patients who took medication themselves rather than those who needed assistance, P value more than 0.05 hence this factor is not significant

Fig. 11: Difficulty in reading labels-It was found that frequency of medication error was higher in patients who faced difficulty in reading labels but overall p value was more than 0.05
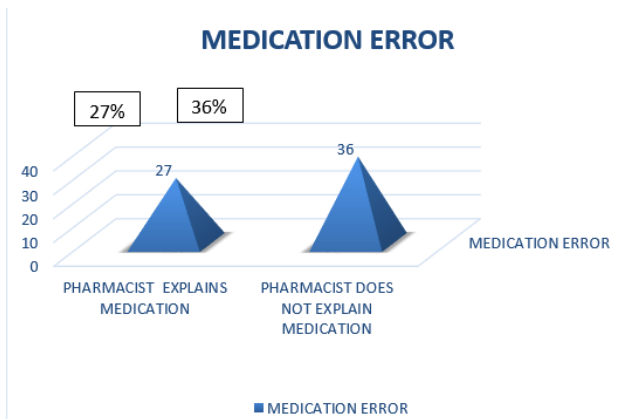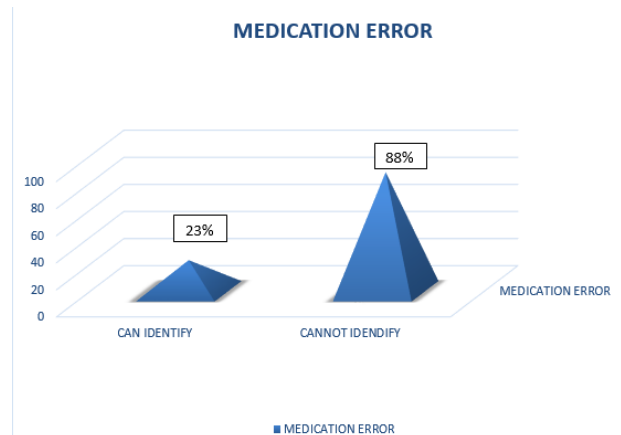

Fig. 12: Medication error if the patient could identify medicine according to the health condition they are intended for-It was found that frequency of medication error was less if patients could identify the medication according to the health condition they were intended for
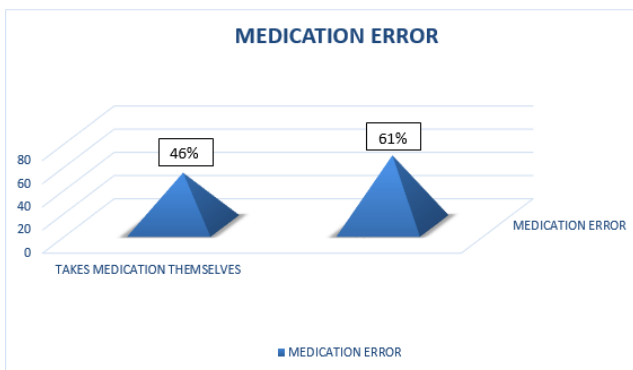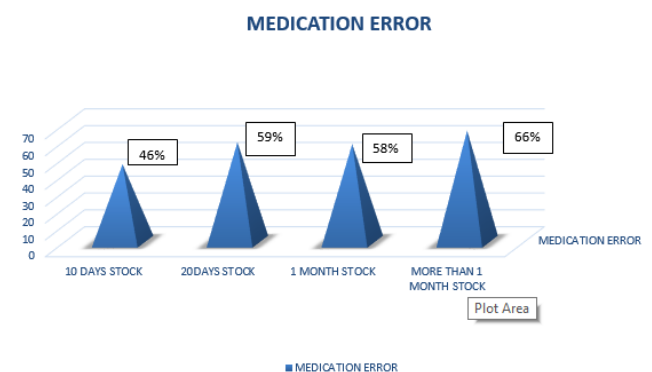

Fig. 13: Stock of medication-No proper relation could be established with the stock of medication with patient and medication error p value 0.16
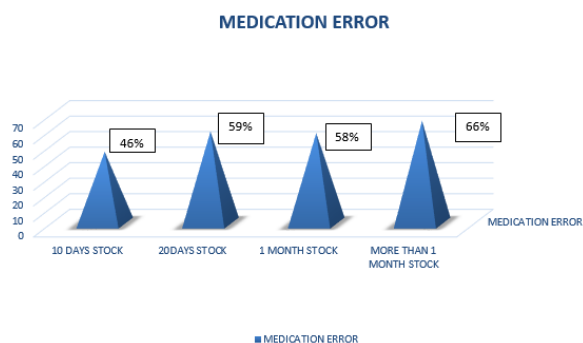
MEDICATION ERROR

Fig. 14: Do you take medication without prescription- It was found that frequency of medication error was higher in those patients who took medication without prescription
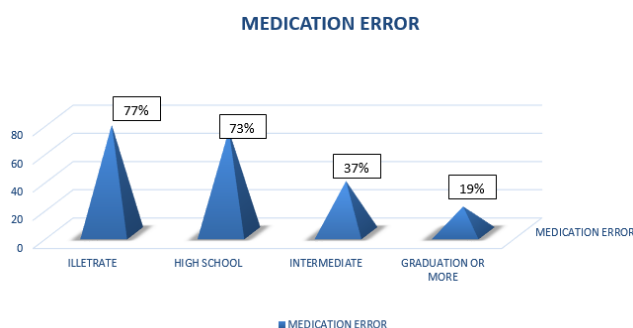
MEDICATION ERROR

Fig. 15: Mediction error in relation to educational status- It was found that frequency of medication error was higher in those patients who had higher educational qualification P value less than 0.05

6. Conclusion

It can be concluded that medication error has very high prevalence and its incidence is associated with a number of factors.

It increases with: Increase in age of patient, increase in number of health condition, increase in number of medications, if patient needs assistance in takeing medication, if patient has difficulty in reading the drug label, if patient takes medicines without prescription.

It decreases: If the doctor or pharmacist explains the medication to patient if they can identify the medication with the disease they were intended for, with the increase in educational qualification of patient.

No proper relation could be established between medication error: The stock of medication with patient, the number of different doctor visits done by patient.

7. Source of Funding

None.

8. Conflict of Interest

None.

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