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OBSERVATIONAL STUDY OF PRESCRIPTION PATTERN ACCORDING TO WHO GUIDELINES IN CHRONIC KIDNEY DISEASE PATIENTS IN MEDICINE OUT PATIENT DEPARTMENT AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Background- It is very hard to understand and improve the rational use of drug without knowledge of appropriate on how drugs are being prescribed. Prescription audit is a part of the integrated clinical audit and is a quality improvement process which aims to improve patient care and outcomes through systematic review of care against clear-cut criteria and the implementation of change. Chronic Kidney Disease is a disorder which affects the morphology and functioning of the kidney. It is a type of kidney disease where is slow loss of kidney function over a course of months or years. **Method** - An observational study was conducted in Department of Pharmacology Dr SNMC and Department of Medicine MDM hospital, Jodhpur. The prescriptions of patients with chronic kidney disease attending medicine OPD was collected and analysed using WHO prescribing indicators. **Result-** This study showed a general overview about overall use of drugs in Chronic kidney disease patient in medicine OPD. The average number of drug per encounter was 4.57. Use of generic drugs was 100% and all the drugs were from EDL (100%). Percentage of single drug was 91.42% and FDCs were 13.40% only. **Conclusion**- All the drugs were prescribed by generic name and from EDL which was a favourable finding. This shows that the treatment was cost effective and successful implementation of EDL in our government hospital.

KEYWORDS: Chronic Kidney Disease, Prescription audit, Drug utilization pattern.

INTRODUCTION

Medicines are a major contributor to the health and well-being of human beings .They are an important point in the prevention and treatment of disease. Rational use of medicines (RUM) is defined as "patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community." On the contrary, irrational or non-rational use is the use of medicines in a way that is not compliant with rational use as defined above. It is commonly expressed in terms of polypharmacy, inappropriate use of antimicrobials, over-use of injection, failure to prescribe according clinical guidelines, and inappropriate self- medication often with prescription-only medicines. Worldwide, despite about one-third of the world's population lacks access to essential medicines, around half of all medicines are inappropriately prescribed, dispensed, or sold, and that half of all patients fail to take their medicine properly. Moreover, although ensuring that the correct medicine is given to the correct patient is a high priority for all health professionals, only less than half of all countries have basic policy frameworks needed to ensure RUM.[1] The irrational use of medicine is not only widespread but also an extremely serious global problem with significant harmful implications for patients, healthcare systems, and communities as a whole. It may result in poor patient outcomes, rapidly increasing antimicrobial resistance, the spread of blood-borne infections, waste resources, and increased adverse medicine events; all of which cause serious morbidity and mortality, and cost billions of dollars per year. Irrational over-use of medicines can stimulate inappropriate patient demand, and lead to reduced access and attendance rates due to stocking-out of medicine and loss of patient confidence in the health system. Even though several factors can promote irrational use of medicine at different stages of the medicine use cycle, the lack of proper knowledge and skills from both providers and patients, unrestricted availability of medicines and distribution of medicine not based on an essential medicine list (EML), economic motive from pharmaceutical companies, weak control and regulation over prescriptions, inappropriate

promotion of medicines, biased information of medicine, health personnel working over-time, profit occurring from selling medicines, and health insurance coverage have been implied to be factors influencing irrational medicine use in the literature.[2] Prescribing errors promote the irrational use of drugs and decrease the patient compliance. To investigate the rational use of drugs, the WHO in collaboration with the International Network for Rational Use of Drugs developed a set of "core drug use indicators." The indicators measure performance in three related areas of prescribing practices, patient care, and facility-specific factors. The core drug use indicators have come to be recognized as objective measures that can describe the drug use situation in a country, region, or individual health facility. Various studies were conducted to assess the drug utilization pattern in Chronic Kidney Disease patients according to WHO prescribing pattern and got different results. High number of Antibiotics were used in most studies which can lead to resistance. Almost in every study most of the drugs were from essential drug list and by generic names but not 100%. There are very few studies which have described the utilization of drugs in Chronic kidney disease patients so this study has been planned to achieve the goals.

Prescribing indicators include:

1. The number of drugs prescribing per encounter,
2. The percentage of drugs prescribed by generic name
3. The percentage of encounter by injection
4. The percentage of antibiotics per prescription
5. The percentage of drugs prescribed from essential drug list (EDL).

Prescription audit is a part of the integrated clinical audit and is a quality improvement process which aims to improve patient care and outcomes through systematic review of care against clear-cut criteria and the implementation of change. Prescription auditing is also an educational activity, and if regularly done, can improve the prescription quality and thus can enable the patient to receive high standard and best-quality care.[3] The kidneys are organs that serve a number of essential regulatory roles. Most of us know that our kidneys function as filters, removing metabolic wastes and toxins from the blood and excreting them through the urine. But the kidneys also serve other essential functions. Through various regulatory mechanisms, the kidneys help maintain the body's water balance, electrolyte balance, and acid-base balance. Additionally, the kidneys produce or activate hormones that are involved in erythrogenesis, calcium metabolism, and the regulation of blood pressure and blood flow.[4] The presence of Chronic Kidney Disease and its complication during therapy remain as unresolved problem. The patients generally have co-morbidity that contributed to a decrease in the renal function, such as infectious disease. Pneumonia and sepsis were found in higher rate in hospitalized patients having Chronic Kidney Disease compared with those who do not have it. These patients have major infectious complication 3 to 4 times then general population. The dose adjustment in these patients is done based on patient's creatinine clearance and Glomerular Filtration Rate .It has correlation with renal function and also able to determine the safety of drug utilization. There are many kinds of equation to calculate the it, such as CKD-EPI equation.[5]

AIM AND OBJECTIVES

This study is aimed to identify proportion of prescription of patients in chronic kidney disease as per the prescribing criteria set by WHO in tertiary care hospital.

OBJECTIVE

To determine the proportion of prescription of patients in chronic kidney disease as per the prescribing criteria set by WHO.

MATERIALS AND METHODS

A hospital based descriptive observational study.

Study Setting - This study was conducted in Department of Pharmacology Dr SNMC and Department of Medicine MDM hospital Jodhpur. Prescriptions of Chronic kidney disease patients were included. Duration of Study was over a period of six months. Study Approval was taken from the Institution Ethics Committee, Dr. S.N. Medical College, Jodhpur.

Inclusion criteria: Diagnosed CKD patients above 18 years of age of either gender was included with at least two drugs per prescription.

Exclusion criteria: Pregnant and lactating women.

METHODOLOGY

The prescriptions of patients with chronic kidney disease attending medicine OPD was collected and analyzed using WHO prescribing indicators as

1. Average number of drugs per encounter =

Total Number Of Drugs / Total Number Of Prescription

2. Percentage of drugs prescribed by generic name. =

No of Drugs Prescribed By Generic name x 100 /Total no. of drugs

3. Percentage of encounters with an antibiotic prescribed =

No of prescription with antibiotic x 100 / Total no of Drugs

4. Percentage of encounters with an injection prescribed.=

No of Prescription with Injection x 100 / Total no of Drugs

5. Percentage of drugs prescribed from essential drugs list =

No of Drugs Prescribed from NLEM x 100 / Total no of Drugs

Derived standard values for the WHO prescribing indicators are as follows:

Indicators	Standard values
1. Average number of drugs per encounter	1.6 - 1.8
2.Percentage of encounters with an antibiotic prescribed	20.0 - 26.8
3.Percentage of encounters with an injection prescribed	13.4 - 24.1
4.Percentage of drugs prescribed by generic name	100.0
5.Percentage of drugs prescribed from the essential drug list or formulary	100.0

Apart from this following details was collected and analyzed:

1. Age wise distribution
2. Gender wise distribution

Statistical Analysis

Data on utilisation of different classes as well as individual drugs were subjected to statistical analysis. Descriptive statistics like mean and median was used for continuous variables and frequency and percentage for categorical variables. Probability (p) value of less than 0.05 was considered to be statistically significant for all analysis.

OBSERVATIONS AND RESULTS

Total 107 Chronic kidney disease patients of adult age group, who fulfilled inclusion criteria were included in this study was conducted in department of pharmacology in association with department of Medicine at MDM hospital, attached with Dr. S. N. Medical College, a tertiary care teaching hospital, Jodhpur, Rajasthan.

1. Demographic Profile

1. Age wise distribution of study patients

Out of 107 patients, maximum patients were of age group 51-60yrs (65.31%), 61-70yrs (23.36%), 41-50yrs (21.49%), <40yrs (16.82%), >80yrs(14.01) were minimum in number.

Table 1: Age wise distribution.

Age (yrs)	Encounter	Percentage
<40	18	16.82
41-50	23	21.49
51-60	26	24.29
61-70	25	23.36
>80	15	14.01
Total	107	100

2. Gender wise distribution of study patients

Out Of 107 Patients 76 were male (71.03%) and 31(28.97%) were female.

Table 2: Gender wise distribution.

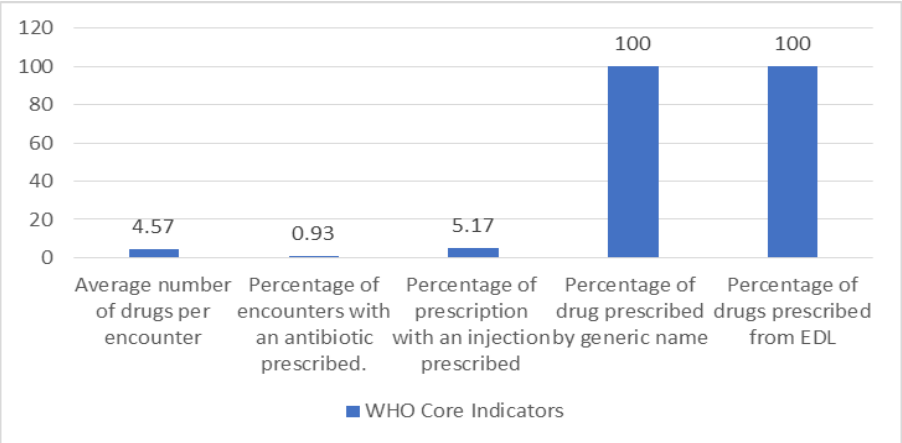
Sex	Encounter	Percentage
Male	76	71.03
Female	31	28.97

3. **WHO Core Indicators**

Average number of drugs per prescription was 4.57 and percentage of antibiotic prescribed was 0.93%, drugs prescribed by generic name was 100% , similarly drugs prescribed from EDL were 100% and percentage of injection prescribed were 5.10%.

Table 3: WHO Core Indicators.

S.NO	WHO Core Indicators	Percentage
1.	Average number of drugs per encounter	4.57
2.	Percentage of encounters with an antibiotic prescribed.	0.93
3.	Percentage of prescription with an injection prescribed	5.10
4.	Percentage of drug prescribed by generic name	100
5.	Percentage of drugs prescribed from EDL	100



DISCUSSION

A drug utilization study is an authorized and systemic quality improvement process. These studies are designed to review drug use and prescribing patterns of drug as per the guidelines.

Data from 107 CKD patient's prescriptions, matching inclusion criteria were analysed. The mean age is on slightly higher side in most of the cases of CKD as it is caused by chronic illness like hypertension and diabetes. CKD is higher in older age due to the increase in the main risk factors such as Hypertension, diabetes mellitus and cardiovascular diseases. In this study 65.31% patients prescription were of age group 51-60. The mean age of the patients was 53.8 which is comparable to study conducted by Rajiv Ahlawa et, al.[6] In This study 71% were male patients which is similar to the research done by Aster Wakjira et, al and observed that 77.5% were male and 22.5% were females.[7]

The average number of drug per encounter was 4.57 which is comparable to study done by Maitha Mohammed et, al where mean number of drugs per prescription was found to be 5.3 ± 1.4.[8] These results were also similar to the studies conducted by Kantanavar et,al. And Deepan et, al. where it was 7.6 and 5.8 drugs per prescription, respectively. The study by Fasipe et al. showed mean drugs per prescription of 10.28 ± 3.85 which is significantly higher than what we have observed in our study, this may be due to the physician preference, higher co-morbid condition or hospitalization. All the drugs were prescribed by generic name and from EDL which was a favourable finding. This shows an effective and successful implementation of EDL in our tertiary care government hospital of Rajasthan.

SUMMARY AND CONCLUSION

The present study was conducted in the department of pharmacology in association with the department of Medicine in MDM hospital Jodhpur Rajasthan. This study showed a general overview about overall use of drugs in Chronic kidney disease patients in medicine OPD. The average number of drug per encounter was 4.57. Use of generic drugs was 100% and all the drugs were from EDL (100%). Percentage of single drug was 91.42% and FDCs were 13.40% only. This shows that the treatment was cost effective and successful implementation of EDL in our government hospital.

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