WORLD JOURNAL OF CURRENT MEDICAL AND PHARMACEUTICAL RESEARCH

www.wjcmpr.com ISSN: 2582-0222

A Study on Drug Utilization Pattern in Outpatient General Department

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ABSTRACT

Introduction: Drug utilization Review (DUR) also referred to be as drug utilization evaluation (DUE) and Drug utilization Pattern (DUP). It is defined as ongoing, authorized and systemic quality improvement process. WHO in 1977 defines drug utilization as "The marketing, distribution, prescription and use of drug in a society with special emphasis on resulting medical, social and economic consequences". Drug utilization studies evaluate drug use at a population level, According to age, sex, social class. They provide feedback on drug utilization data to the prescribers. DUP Involves a comprehensive review of patient's prescription and medication data before, during, and after dispensing to ensure appropriate medication decisions making and positive patient outcomes. Drug utilization pattern play a significant role in helping the healthcare system to understand, explain and improve the prescribing administration the use of medications. Pharmacokinetic and pharmacodynamics in general department differs in various age groups. The ultimate goal is to achieve rational and effective pharmaceutical care to the general department patients. This has resulted in a clarification of their uses, wider indications, and alternative methods of delivery. DU studies become one of the power full tools in evaluation of health system. Method: we conducted a single cantered observational and prospective analysis in general department patients age between 10-80 years at Sri sai niharika nursing home, old palnadu bus stand, narasaraopet. A total number of 1648 prescriptions were recorded. The drug data such as name of the drug, dosage-form, dosing frequency, route of administration were also noted. The results were presented as percentage. Conclusion: This study provides the information about the prescribing patterns of drug in general department patients. And conclude the role of clinical pharmacist is vital to be an integral part well as to clear the irrational use of drugs in general department. Pharmaceutical care is needed in the correct management of drugs which is even more important in case of general patients. The WHO core indicators helped to improvise the prescribing pattern, identify significant problems involved in the knowledge gap of patients or care takers understanding of instructions provided by consultants and even to minimize the cost burden on the patients.

Key words:
Drug utilization pattern, Outpatient, General department, defined daily dose, WHO, Prospective DUR, Retrospective DUR, Concurrent DUR, prescribed daily dose.

Article History:
Received On: 11.12.2019
Revised On: 20.02.2020
Accepted On: 23.02.2020

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DOI: https://doi.org/10.37022/WJCMPR.2020.02013

INTRODUCTION

Drug utilization review is defined as authorized, structured, ongoing review of healthcare provider prescribing, pharmacist dispensing and patient medication. Rational drug use is an important factor to be checked for the optional benefit of drug therapy in patients health care system. In India , many factors like illiteracy poverty, use of multiple healthcare system, drug advertising and promotion, sale of prescriptions, prescribing pattern competition in medical and pharmaceutical market pace and limited availability this provides the drug information main chief reasons for not achieving the optimal health care[1] .

Inappropriate use of drugs also further leads to random increase in the cost of the medical care, antimicrobial resistance; adverse effects and utilization pattern studies become one of the potential tools in the evaluation of health system. Drug utilization studies focuses on factors related to prescribing, dispensing, administering and taking of medications and associated events.

Drug therapy accounts for a major portion of health expenditures. A Useful strategy for achieving cost efficient healthcare is drug utilization research as it forms the basis for making amendments in drug policies and helps in rational drug use. Antibiotics are prescribed as most frequent also accounted for majority of drug resistance. The prescribed daily dose for most of the antibiotics corresponding to the daily dose reflecting adherence to international recommendations.

Brand name prescribing and poly pharmacy was very common[2]. 78%of the total drugs prescribed were from the national list of essential medicines 2003. Restricting the use of newer drugs and costlier antibiotics, branded drugs and number of drugs and number of drugs per prescriptions could be considered as targets to cut down the cost of drug therapy significantly.

Drug utilization research holds a crucial place in the clinical practices as it forms that the basis for making amendments in the drug dispensing policies at local and national levels. The ultimate goal of such research to facilitate rational drug use[3].

Also, since it helps in developing strategies to utilize health resources in the most efficient manner, it is particularly needed in a developing economics of India, were 72% of all health care burdens is borne by the patients[4].

The reference standard for drug utilization is WHO ATC/DDD (Anatomical Therapeutic Chemical/Defined daily dose) methodology. For each drug and route of administration, defined daily dose (DDD) is defined by the WHO Collaborating Centre for Drug Statistics and Methodology as the assumed

average maintenance adult dose per day for its main indication[5]. The DDD therefore is an international unit serving for international or regional comparisons. However, DDD does not necessarily reflect the recommended or prescribed daily dose (PDD). In fact, several studies have reported discrepancies between DDD and PDD for different groups of drugs[6].

A number of studies have reported drug usage patterns in different health care sectors in India. The aim of the present study was to generate the data on drug utilization in outpatients of general department[10].

DRUG UTILIZATION PATTERN

Rational drug use is an important factor to be checked for the optimal befit of drug therapy in patient care. In India, many factors like illiteracy poverty, use of multiple health care system, drug advertising and promotion, sale of prescription, competition in medical and pharmaceutical market place and limited availability of drug information are the main reasons for not achieving the optimal healthcare[7,8]. Inappropriate use of drugs also leads to increased cost of medical care, antimicrobial resistance, adverse effects and utilization pattern studies becomes one of the potential tools in evaluation of health systems[9]. Drug utilization studies focuses on factors related to prescribing, dispensing, administering and taking of medication and associated events.

CLASSIFICATION OF DRUG UTILIZATION EVALUATION

Drug utilization pattern is divided into three different categories

1. Prospective DUR[11]

Prospective review evaluation a patient planned drug theory before a medication described. This drug utilization pattern helps the pharmacist to access the prescription medications and resolves drug related problems.

2. Concurrent DUR

It is performed during the course of treatment and the ongoing monitoring of drug therapy for the positive patients outcomes.

3. Retrospective DUR

It is a revie2w of drug therapy after the patient has received the mediation. A retrospective review aims to detect the pattern in prescribing, dispensing, or

Advertising drugs and it helps to prevent recurrence of inappropriate medication use. The advantage of this drug utilization review is to ease of data collection, as records are assessed at the data collector's convenience.

A disadvantage is that some information may be unclear or missing and N phase.

Steps in DUE[12]

Drug utilization evaluation process is divided into four phases

Phase 1: Planning

1. Develop a DUR committee.
2. Write policies and procedures.
3. Describe about the departments of the hospital, where drugs are utilized.
4. Assess resources available for critical development, data collection, and evaluation.
5. Consider the indications, dosing, dosage form, frequency of drug used to monitor and evaluate.
6. Select criteria and establish performance threshold.
7. Develop the methodology for data collection, evaluation and create a schedule.
8. Educate hospital staff about DUE study and current criteria.

Phase 2: Data Collection and Evaluation

10. Start the data collection in proper way
11. Evaluate the collected data and determine if drug use problem exist.

Phase 3: Interventions

12. Send the results to hospital staff.
13. If a drug use problem was found, design and implement interventions.
14. Collect new data on problem drug to determine with drug use has improved as a result of the intervention.
15. Disseminate results of re-evaluations

Phase 4: Program Evaluation

16. Evaluate all DUR program activities at the end of the year, and plan the new activities for the upcoming year.

INDICATORS USED [13]

The indicators of prescribing practices measure the performance of health care providers in several key.

Dimensions related to the appropriate use of drugs[14].

WHO prescribing indicators used in our study:.

a. Average number of drug prescribed per patients.

$$= \frac{\text{Total number of drug prescribed}}{\text{Total number of encounter sample}}$$

b. Percentage of encounters with an antibiotic prescribed

$$= \frac{\text{Number of patient encounter with an antibiotic}}{\text{Total no of encounter sample}} \times 100$$

c. Percentage of encounters with an injection prescribed

$$= \frac{\text{Number of patient encounters with an injection prescribed}}{\text{Total number of encounter sample.}} \times 100$$

d. Percentage of drugs prescribed from essential drug list

$$= \frac{\text{Number of drugs prescribed from essential drug list}}{\text{Total no of prescribed drugs}} \times 100$$

MATERIALS AND METHOD

We conducted a single cantered observational and prospective analysis in general department patients age between 10-80 years at Sri sai niharika nursing home, old palnadu bus stand, narasaraopet. A total number of 1648 prescriptions were recorded. The drug data such as name of the drug, dosage-form, dosing frequency, route of administration were also noted. The results were presented as percentage.

Inclusion criteria

Patient with age group of 10-80 years. All out-patient general department

Exclusion criteria

Patients with age group of above 80 years. Intensive care unit patients.

Ethical considerations

Ethical committee approval was taken before initiation of the study

Protocol number

NIPS/PROTOCOL/05/2020

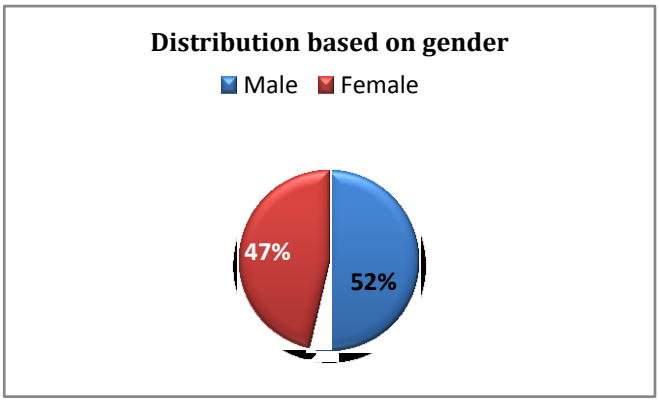
RESULTS AND DISCUSSION

Distribution based on Gender

A total of 1648 patients were enrolled in the present study during the study period. Out of that 784(47%) were males and 864(52%) were females are effect diseases.

Table.1: Distribution based on gender

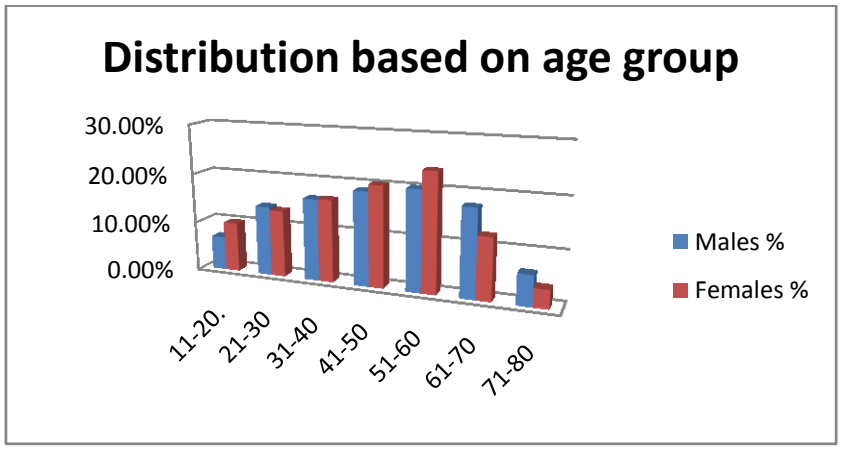
Gender	No. of prescriptions	No. of prescriptions %
Male	784	47.57%
Female	864	52.42%



The age distribution with gender of patients enrolled in the Study is present in (table2). The results revealed that most of the patients were from 31-40 years age group.

Table.2: Distribution based on age group

Age group	No. of male patients	Males %	No. of female patients	Females %	Total	Total %
11-20	53	6.76%	86	9.95%	139	8.43%
21-30	110	14.03%	116	13.42%	226	13.71%
31-40	129	16.45%	143	16.55%	272	16.50%
41-50	148	18.87%	175	20.25%	323	19.59%
51-60	158	20.15%	205	23.72%	363	22.02%
61-70	138	17.60%	107	12.38%	245	14.86%
71-80	48	6.12%	32	3.70%	80	4.85%



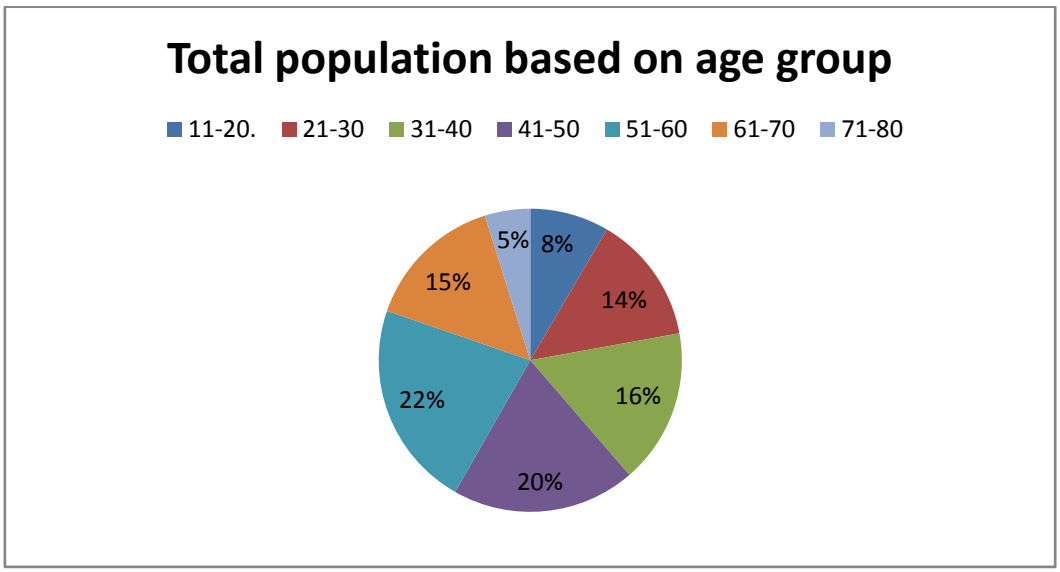
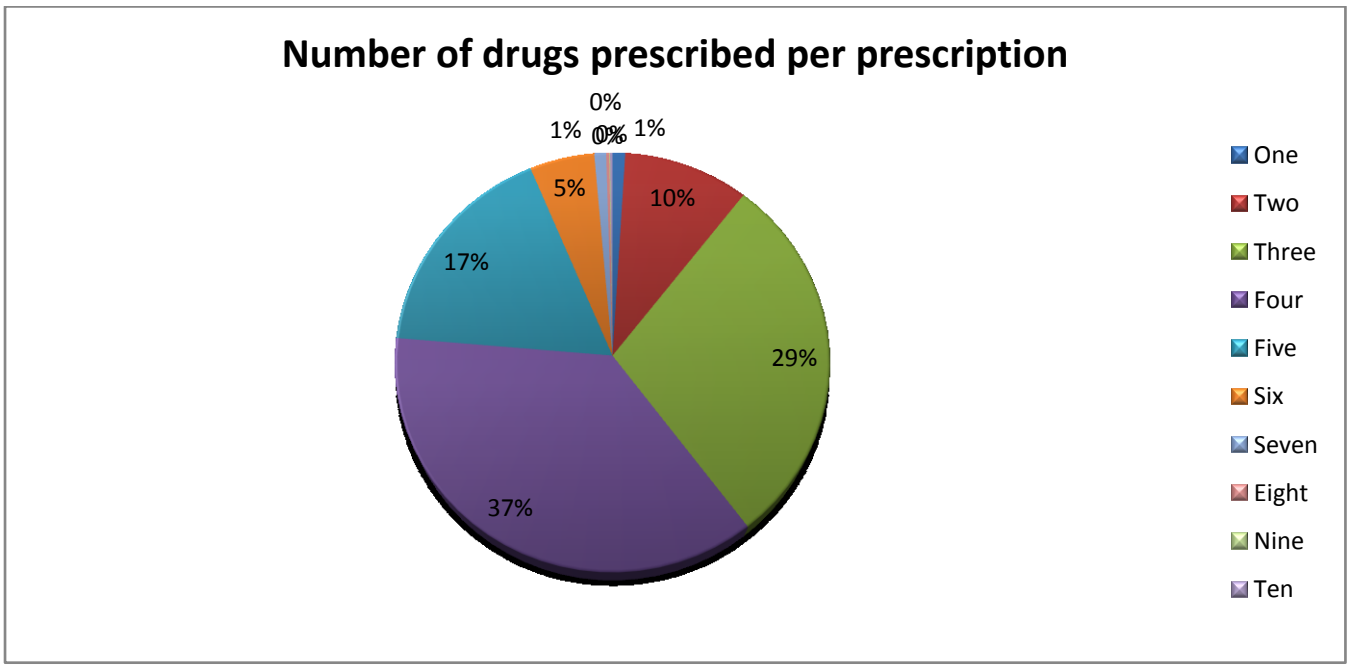


Table.3: Number of drugs prescribed per prescription

Prescription containing number of drugs	Frequency	Frequency %
One	16	0.97 %
Two	159	9.64 %
Three	478	29%
Four	605	36.71%
Five	285	17.29%
Six	82	4.97%
Seven	15	0.91%
Eight	4	0.24%
Nine	1	0.06%
Ten	3	0.18%



The number of drugs per prescription were listed in the above (table3). The results revealed that 36% of the total prescriptions of the study population contained four drugs per prescription.

Table.4: Distribution based on dosage forms

Dosage forms	No. of drugs	Percentage
Tablets	5516	87.44%
Syrups	607	9.62%
Creams	9	0.14%
Injections	123	1.94%
Nebulizers	24	0.38%
Drops	2	0.03%
Ointments	15	0.23%
Capsules	9	0.14%
Gels	2	0.03%
Nasal sprays	1	0.01%

The dosage forms were listed in the (table4) . The results revealed that 87% of the total drugs of the study population are tablet type dosage form.

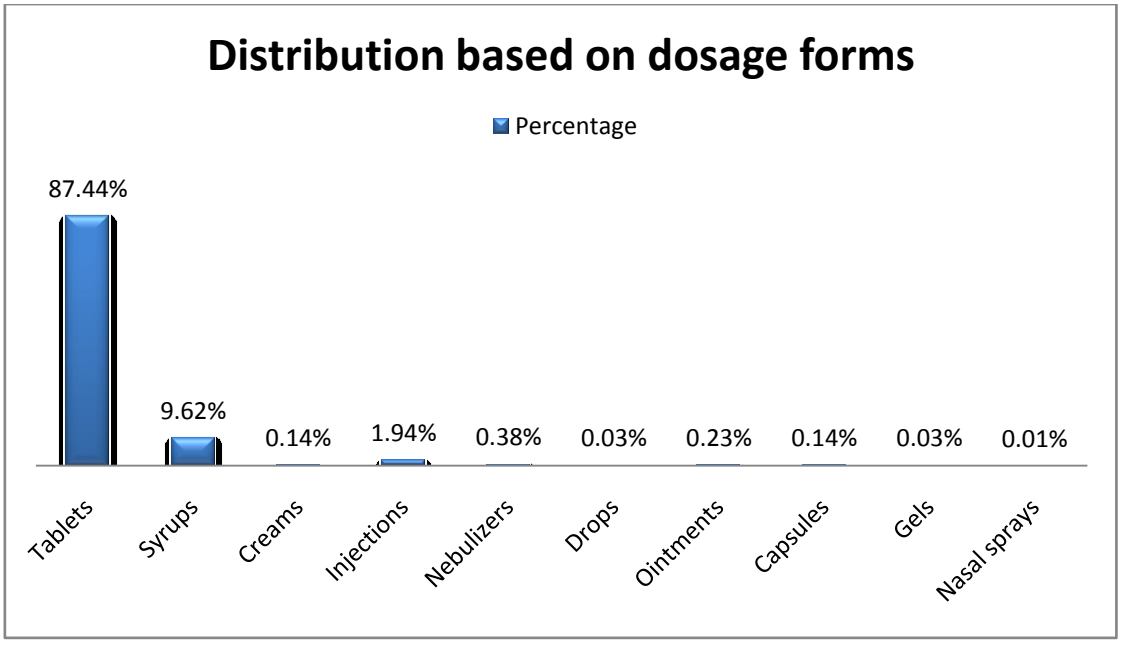
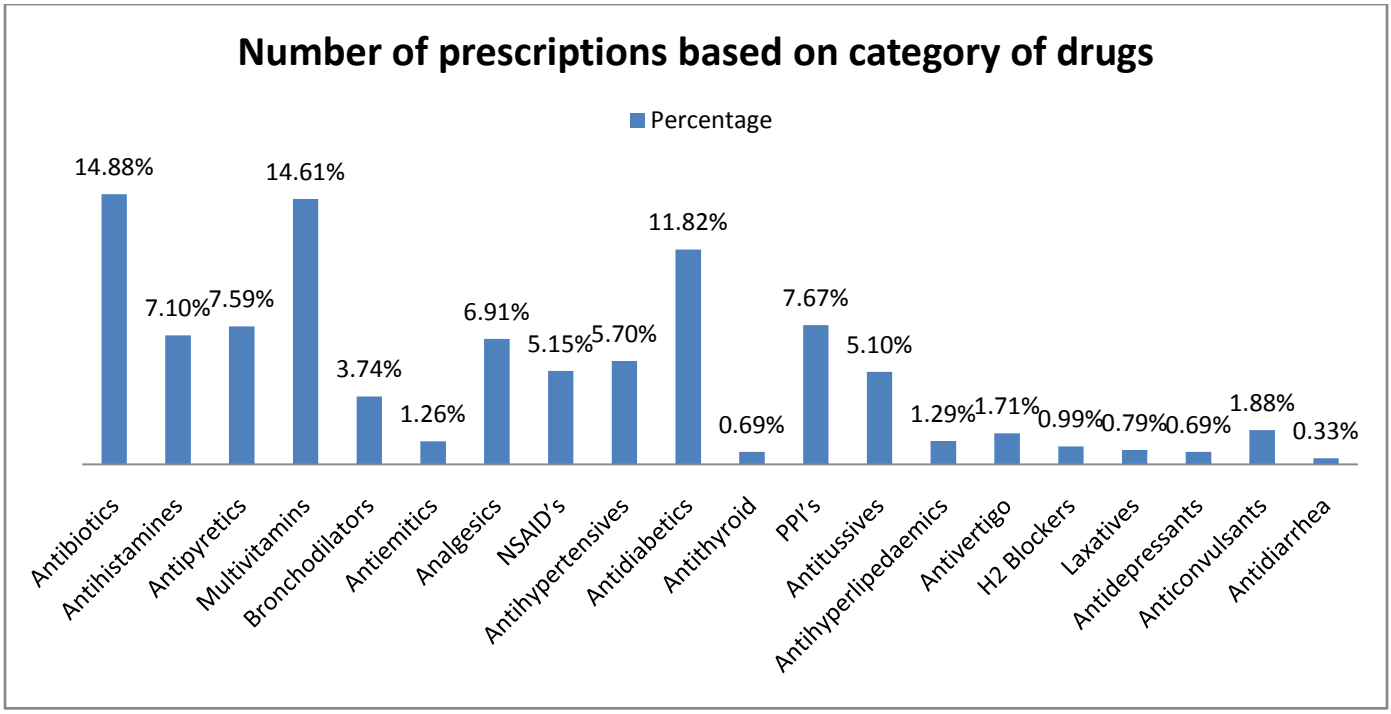


Table.5: Number of prescriptions based on category of drugs

Category of drug	No. of prescriptions	Percentage
Antibiotics	939	14.88%
Antihistamines	448	7.10%
Antipyretics	479	7.59%
Multivitamins	922	14.61%
Bronchodilators	236	3.74%
Antiemitics	80	1.26%
Analgesics	436	6.91%
NSAID's	325	5.15%
Antihypertensives	360	5.70%
Antidiabetics	746	11.82%
Antithyroid	44	0.69%
PPI's	484	7.67%
Antitussives	322	5.10%
Antihyperlipedaemics	82	1.29%
Antivertigo	108	1.71%
H_2 Blockers	63	0.99%
Laxatives	50	0.79%
Antidepressants	44	0.69%
Anticonvulsants	119	1.88%
Antidiarrhea	21	0.33%

The category of drugs used in study population and their usage in the total prescriptions are given in the (table5).



The results revealed that 14%of the prescriptions contain antibiotics and multivitamins in highest number in the given study population.

Table.6: Analysis of prescriptions in the light of W.H.O prescribing indicators

Parameters	Observed values
Total no. of prescriptions analyzed	1648
Total no. of drugs prescribed	6308
Average no. of drugs per encounter	3.8
Total no. of antibiotics prescribed	939
Percentage of encounters with an antibiotics prescribed	56.97%
Percentage of encounters with injections prescribed	7.46%
Percentage of drugs prescribed from essential drug list	34.95%

A total of 1648 prescriptions were collected randomly analyzed. A total of 6308 drugs were prescribed, average number of drugs per encounter were 3.8 drugs prescribed from essential drugs list (WHO) were 654(34.95%). Total number of antibiotics prescribed were 939. Percentage of encounters with an antibiotic prescribed were 56%. Percentage of encounters with injections prescribed were 27.2% as listed in (table6).

DISCUSSION

Our study title drug utilization pattern in outpatient general department is single cantered, prospective, observational study conducted 1648 outpatients. A total of 1648 cases evaluated 784 were males 864 females. Among the age distribution with gender of patients enrolled in the study, the results revealed that most of the patients were from 51-60 years age group (table-2). The number of drugs per prescriptions were analyzed the results revealed that 36% of the total prescriptions of the study population contained four drug per Prescription and least is 1 drug per prescription 0.97% as shown in (table-3).

Among the dosage forms drops, syrups, tablets, injections, capsules, ointments, gels, nasal sprays, creams, nebulizers. Tablets have been highly prescribed 87%. The most common drug prescribed was antibiotics of 14% , multivitamins are of 14%, anti diabetics are of 11%, and ant thyroid, H_2blockers, antidepressants, laxatives, anti-diarrheal's are present very low that is 0.7% as shown in (table-5). This shows that prescribers more intended to prescribe antibiotics, multivitamins, anti diabetics commonly. In table 6 we can see a total of 6308 drugs were prescribed, average number of drugs per encounter 3.8. as per WHO, the average number of drugs per encounter should be 1.6-1.8. Our study reveals poly pharmacy which reflects the usual practice of private setup clinics. Drugs prescribed for essential drug list (WHO) were 654(34.95%)[17]. Essential drug offers a cost effective solution to many healthy problems in a developing country they should be selected with due regard to disease prevalence , be affordable, with assured quality and be available in the appropriate dosage forms. In our country the percentage of drugs prescribed from the essential drug list was 34.94% which was low. This may due to lack of awareness of essential drug list total number of antibiotics prescribed were 939. Percentage of encounters with an antibiotic prescribes was 56.97%. According to WHO 15-25% of prescriptions with antibiotics is excepted in most of developing countries were infectious disease are more prevalent. Various studies from India also report a high rate ranging from 40-80%. The prescribers need to be more cautious before prescribing any antibiotic to avoid unnecessary burden on patient and development of resistance on patients. Percentage of encounter with injections prescribed was 7.46%. the use of injection for treatment is accompanied with variety of disadvantages including sepsis at administration, increased risk of tissue toxicity from local irritation, costly, difficulties on correcting the error, thus, WHO recommended that less than 10%prescription should include one or more injections .

CONCLUSION

This study provides the information about the drug utilization pattern in the general outpatient department. It has helped to identify irrational prescribing pattern of drugs in general outpatients[15]. Hence the clinical pharmacist must be considered to be an integral part. They should be involved in the collection and presentation of prescribing data as a part of clinical audit and counselling of the patients care takers[16]. Pharmaceutical care is needed in the correct management of drugs which is even more important in case of general outpatient department, the WHO core indicate us helped to improvise the prescribing pattern, identify significant problems involved in knowledge gap of patients or caretakers understanding of instructions provided by consultants and even to minimize the cost burden on patient.

ACKNOWLEDGEMENT

The authors wish to think all the staff members and nurses of the sri sai niharika nursing home at Narsaraopet for their invaluable contribution to the publication of their outstanding daily bedside work. The authors declare no competing interests.

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