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P. Geetha
Department of Pharmacy Practice, Jaya College of Pharmacy, Thiruninravur, Chennai, Tamil Nadu, India

P. Vijayalakshmi
Department of Pharmacy Practice, Jaya College of Pharmacy, Thiruninravur, Chennai, Tamil Nadu, India

S. Tilak
Department of Pharmacy Practice, Jaya College of Pharmacy, Thiruninravur, Chennai, Tamil Nadu, India

A. Maheswaran
Department of Pharmacy Practice, Jaya College of Pharmacy, Thiruninravur, Chennai, Tamil Nadu, India

N. Narayanan
Department of Pharmacy Practice, Jaya College of Pharmacy, Thiruninravur, Chennai, Tamil Nadu, India

Correspondence:
P. Geetha
Department of Pharmacy Practice, Jaya College of Pharmacy, Thiruninravur, Chennai, Tamil Nadu, India

Prescription analysis to evaluate the rational use of drugs by using who health care indicators

P. Geetha, P. Vijayalakshmi, S. Tilak, A. Maheswaran, N. Narayanan

Abstract
Prescription analysis gives the basic information for the design of strategy to address irrational prescribing practices in a health centres in Chennai. Datas were collected from patients register and by interviewing the patient's immediately after Doctor prescribes and before patient dispenser's encounters. Data's collected were analyzed for WHO prescribing indicators. Out off the 100 prescription analyzed, the results showed that the average number of drugs prescribed per prescription was 4.38 and that a large proportions of the prescriptions contained two or more drugs that could results in adverse drug reactions prescribing by generic names 11.19% and was encouraging. The exposure of patients to the antibiotics (39%) was high and injection use (38%) was often unnecessary. Prescribing from Essential Drug List (43.49%) was satisfactory. The results suggest a need for intervention to curb the irrational use of drugs prescribing in a health centres. Continuous education of prescribers and health care providers, monitoring, supervision public education would be beneficial.

Keywords: Irrational Prescribing, injection use, Antibiotics use, Prescribing indicators

1. Introduction
More than 50% of all medicines worldwide are prescribed, dispensed, or sold inappropriately and 50% of patients fail to take them correctly. Conversely, about one-third of the world's population lacks access to essential medicines. Treatment with medicines is one of the most cost-effective medical interventions known, and the proportion of national health budgets spent on medicines ranges between 10% and 20% in developed countries and between 20% and 40% in developing countries. Thus, it is extremely serious that so much medicine is being used in an inappropriate and irrational way.[1] WHO in 1985 defines Rational Use of Drug 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[2]. Evaluation of the health care quality is an essential component of this work[3]. Rational use of drug should meet certain criteria like Appropriate indication, Appropriate drug, Appropriate Patient, Appropriate information, Appropriate monitoring. Irrational use of drug are influenced by the following factors like patient, legal authorities, prescriber, dispenser[4]. Common types of irrational use of drug observed were Poly pharmacy, Inappropriate use of antimicrobials, Over use of injections when oral formulations would be more appropriate, Failure to prescribe in accordance with accepted clinical guidelines, Inappropriate self medication. Failures to adhere the treatment, often take less than prescribed. Over use of safe drugs are use of needless luxurious drugs [5].
To decrease the irrational use of drugs the essential drugs were brought by WHO to satisfy the healthcare needs of the majority of population. The International Network for Rational Use of Drugs (INRUD) in 1989[6], Delhi Society for the Promotion of Rational Use of Drugs (DSPRUD) in 1994[7], Tamilnadu Society for Promotion of Rational Use of Drugs (TNSPRUD) [8] are brought to increase the awareness on rational drug use. WHO core indicators are studied in this work, includes Prescribing indicators likes Average number of drug per encounter, percentage of drugs prescribed by generic name, percentage of encounter

2. Methodology
The prospective study planned earlier was conducted in a 250-bedded multi-specialty government hospital at Chennai. The hospital is unique and people all over the country come and avail the facilities. The study was performed with the permission through the letter of GH/SUPERINTENDENT/ 2012-13 dated 1st December 2012. All the inpatient and outpatient were included in this study. Analysis of data was done as per WHO/DAP/93.1. From the formula calculated results obtained for the drug use indicators were compared with ideal values i.e. WHO standard values

3. Results

This study was performed as described earlier in the plan of work and methodology with respect to the WHO recommended prescribing indicators. The following were the results obtained from the study with discussion.

3.1 Total cases

The total of 100 prescriptions was collected out of which 50 were in patient and the remaining 50 were out patients. The patient for this study was selected based on the inclusion criteria as described in the above methodology. It is been explained in **figure 1.**

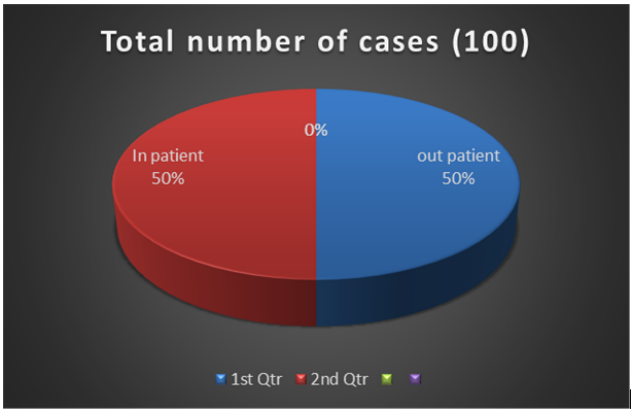

Fig 1: Total number of cases

3.2 Gender distribution

The dates revels that female patient prevailed more than male patient. The details are represented in **Table no: 1**

Table: 1 Gender categorization of overall study population

Gender	IP (n=50)	Total (IP) (%) n=50	OP (%) n=50	Total % (IP+OP) (n=100)
Male	10	20%(10)	(50)%25	35(35)
Female	40	80%(40)	(50)%25	65(65)

3.3 Age categorization

The minimum patients were in the age group of old (>85) with 1% of population surveyed. The details are represented in **Figure 2**

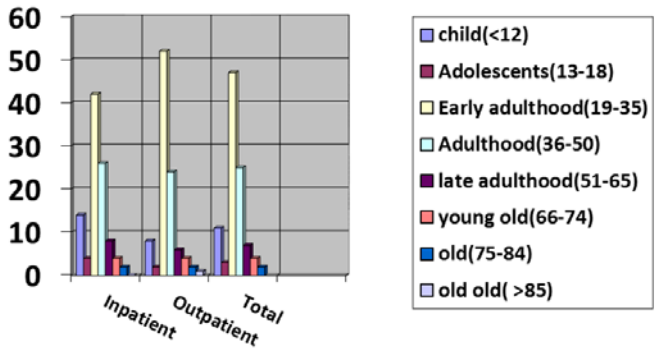

Fig 2: Age categorization

3.4 Prescribing Indicators:

Tabular representation of the prescribing indicators are given in **Table No: 2**

Table: 2 Details of the prescribing indicators results

S.No	Parameters	IP (n=50)	OP n=50	Total (IP+OP)(n=295)	Ideal value
1.	Average number of drugs per encounter	4.98	3.78	4.38	<2
2.	Percentage of drugs prescribed by generic name	11.5	10.88	11.19	100%
3.	Percentage of encounters with an antibiotic prescribed	48%	30%	39%	<30
4.	Percentage of encounters with an injection prescribed	54%	22%	38%	<10
5.	Percentage of drugs prescribed from EDL	47.26%	39.72%	43.49%	100%

4. Discussion

Prescribing pattern of the drug reflects the clinical judgment of the clinicians. Our study revealed that the average number of drugs per prescription it was found to be 4.38 drugs per encounter which was more than the ideal value (<2). The current study on the poly pharmacy reported to have about 2.7 drugs per prescription. Similar studies were conducted in the other countries and it was found to be 2.35 drugs per prescription in the study made in Cambodia.

In the present study percentage of drug prescribed by their generic name was found to be 11.19%. Thus both in inpatient and outpatient were found to have very less practice of prescribing in their generic names. This has increased the irrationality of drug usage. Thus by modifying this parameter to 100% as per WHO causes increase in rationality and decrease in the cost. The percentage encounters with antibiotics prescribed was about 39% which was below the ideal value which should be 30% as per WHO. In the current study percentage encounter of antibiotic prescribed was 48 % and 30% prescribed for outpatient and inpatient respectively.

The percentage of encounter with injections prescribed was very more than the ideal value where as it was found to be 38% it was higher in inpatients than in outpatient. This may be due to patient visit in IP department only at an acute stage where an extra care as to be provided they increased use of injection leads to increased cost of medication, tissue necrosis, anaphylactic shock, transmission of HIV and blood borne diseases. The WHO recommended that less than 10% of prescription should include one or more injection.

The percentage drug prescribed from EDL was about 43.49% which was distributed with outpatient (47.26%) and inpatient (39.72%).Even though the health facility does not have an list of EDL or standard list of medication the practice of prescribing drugs from such list of standard medication brings out healthy practices in promoting rational drug use. Whereas the standard described for EDL was 100%.

5. Summary

"Prescription analysis to evaluate rational use of drugs by using WHO health care indicators." was conducted as described in the methodology and the results were described in the previous sections. The study can be concluded by highlighting the following points as a summary. They are:

- Out of 100 50 % of patients were from Outpatient department of GH and 50% of patients from Inpatients department.

- In the entire study population 35% of patients were males and 65% were females.
- The higher population was in the range of 19-35 in years.
- The entire study population was used for the assessment of rational drug use. Prescribing indicators were studied from 100 prescriptions.
- Average number of drugs per encounter was found to be 4.38.
- 70% of prescriptions had 2-5 drugs and 21% of prescriptions prescribed had 6-10 drugs.
- Major drug categories prescribed were antibiotics, antiulcer, NSAID, vitamin preparations and antiasthmatic drugs etc.
- Percentage of drugs prescribed by generic name was 11.19%
- Percentage of encounters with antibiotics prescribed was 39% for entire study population.
- Average number of antibiotics prescribed in overall study population was found to be 14.38%
- Percentage of encounters with an injection prescribed was 38%. Average number of injection for entire study population was found to be 2.64
- Most of injection prescribed in the range of 1-3 injections and no injection in range of 4-6 injections.
- Percentage of drugs prescribed from EDL was found to be 43.49%

6. Conclusion

Health is considered a basic human right under UN perspective and Millennium Development Goals (MDGs). Inspite of all the advances in the field of health care, medicines have remained core in the health care. Usually, use of medicines is the end of any therapeutic consultation. Medicines are different from other consumer products; therefore, they should be used carefully and rationally. Health professionals have a responsibility to ensure that the right drug is prescribed, dispensed and taken. Therapies need to be tailored to suit local experience, practice and requirements. Improving drug use improves the quality of care and frequently lowers cost. Myth exist to measure drug use and to change practices.

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