Evaluation of Drug Prescription Pattern using World Health Organisation Prescribing Indicators in a Tertiary Care Hospital, Bangalore

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INTRODUCTION:

Medicine is an ever transitional science, which deals with the practice of diagnosis use, treat or prevention of diseases, better health care incorporates availability of good quality products at minimum cost with maximum effectiveness in minimise risk with respect to the patient's choices. Inappropriate use of medicine leads to serious morbidity and mortality, it also exemplifies a waste of resources and may harm the public health by resistance in case of antimicrobials. WHO says drugs promotion as all the informational and eloquent activities by manufacturers, distribution to influence sale and practice of medicinal drugs. It is mentioned that most of the brochures or advertisements were not adhering with standards criteria of ethics and this would end up in irrational use of drugs and affect patient's health status negatively. The indicators of drug use are first line measures. The drugs use studies by indicators are broadly categorised into four i.e. describing current treatment practices, comparison of the individual facility performance or prescriber's performance, monitoring of drug use patterns in a periodic manner, assessing the impact of intervention. These facts indicate that there is a need to assess evaluation of drug prescription pattern using world health organisation prescribing indicators.

MATERIALS AND METHODS

1 Duration of study

- The study will be conducted for a period of 6 months.

4.2 Site of the study

- Study will be conducted at tertiary care hospital.

4.3 Study design

- A hospital based observational study.
4.4 Sources of Data and Materials:
- Patient case sheet
- Medication/treatment chart
- Suitable design documentation form
- Laboratory data report

4.5 Study Criteria:
**Inclusion Criteria**
- Age 18 years and above.
- Inpatients in general medicine departments

**Exclusion Criteria**
- Inpatients of other departments
- Incomplete medical records.
- Pregnant and lactating women

4.6 Study Materials:
- Prescriptions
- Case sheets

4.7 Method of Data Collection:
- Data collection form

**Procedure**
- The protocol was submitted to Institutional Human Ethical Committee, ABIPER, Bangalore for human ethical approval.
- Those patients who were satisfied the study criteria were enrolled into the study and patient informed consent was obtained.
- The patient’s demographic, clinical and medication data were collected into specifically designed data collection form.
- All the data was reviewed from the angle of evaluation of drug prescription pattern using world health organisation prescribing indicators

**Analysis of Data**
The collected data was assessed by descriptive statistics. The study data were analysed by using statistics such as average and percentages.

**Human Ethical Clearance Committee Approval:**
Human ethical clearance committee of ABIPER, has approved the study and issued a letter of permission to conduct the study

**RESULTS AND DISCUSSIONS**

- **Demographic details of the study population**
Among 143 patients enrolled in the study, 60.13% (n=86) were male and 39.86% (n=57) were females.

| GENDER | NUMBER | PERCENTAGE |
|--------|--------|------------|
| MALE   | 86     | 60.13%     |
| FEMALE | 57     | 39.86%     |
| TOTAL  | 143    | 100%       |

- **Number of drugs per encounter**
This prescribing indicator helps to identify the practice of polypharmacy by the prescribers in hospitals. The study concluded that the average numbers of drugs per encounters was 3.5

**Table 2: Number of Drugs per Encounter**

| Number | Frequency of prescriptions | Percentage |
|--------|---------------------------|------------|
| 1 drug | 9                         | 5.59%      |
| 2 drugs| 23                        | 16.08%     |
| 3 drugs| 31                        | 21.67%     |
| 4 drugs| 53                        | 37.06%     |
| 5 drugs| 19                        | 13.28%     |
| More than 5 drugs | 9          | 6.29%      |
| Total  | 143                        | 100%       |

- **Number of drugs prescribed by brand and generic**
In the current study 37.10% of drugs were prescribed in generic name and 62.9% of drugs were prescribed by brand names. This is similar to the study conducted by the satish et al, which started that the generic prescribing was 38.3%, but Lenjisa JL et al 2014, study shows that 96.6% of drugs, were prescribed in generic name. This indicates that in some hospitals, antibiotics prescriptions are done with generic names and which helps to in patients compliance, low cost of therapy, reduce risk of errors in drugs names such as sound alike drugs and look alike drugs and also helps to reduce delay of drugs to dispensed by giving alternative drugs rather than the particular brand drugs.

**Table 3: Number of Drugs Prescribed By Brand and Generic**

| Prescription | Number | Percentage |
|--------------|--------|------------|
| BRAND        | 322    | 62.89%     |
| GENERIC      | 190    | 37.10%     |
| TOTAL        | 512    | 100%       |

- **Use of antibiotics**
The percentage of drug encounters with an antibiotics were prescribed was 61.5% . This is similar to the studies of Satish et al and Lenjisa JL et al i.e 57.07% and 58% respectively. But the study conducted by Ramachandra et al got 22.6% of antibiotics prescribing. This shows that there was a variation in the treatment guidelines and irrational prescribing of antibiotics leads to resistance and higher cost of therapy and loss of resources. Majority of antibiotics prescribed for prophylaxis rather than specific treatment. So it was used as a barrier therapy for all types of infections and this leads to ADRs and resistance to microorganisms, which is a global problem

**Table 4: Use of Antibiotics**

| Number of Antibiotic | Frequency | Percentage |
|----------------------|-----------|------------|
| 0 ANTIBIOTICS        | 55        | 38.46%     |
| 1 ANTIBIOTICS        | 43        | 30.06%     |
| 2ANTIBIOTICS         | 13        | 9.09%      |
| 3 ANTIBIOTICS        | 16        | 11.18%     |
| 4 ANTIBIOTICS        | 9         | 6.2%       |
| MORE THAN 4          | 7         | 4.89%      |
| TOTAL                | 143       | 100%       |
• Use Of Injections

In the current study, 57.30% of drugs prescribed was injections which was lesser than the finding done by Satish et al, in the hospital of Mandya district, the increase of utility of injection may be due to the higher efficacy of injections than oral medications, and also the study was conducted for the in-patients so that patients were in serious conditions are treated and injections have fast onset of action.

Table 5: Use of Injections

| Number of Injections | Frequency | Percentage |
|----------------------|-----------|------------|
| 0 INJECTION          | 61        | 42.65%     |
| 1 INJECTION          | 49        | 34.26%     |
| 2 INJECTION          | 24        | 16.78%     |
| 3 INJECTION          | 5         | 3.4%       |
| MORE THAN 3          | 4         | 2.79%      |
| TOTAL                | 143       | 100%       |

• Prescribing from the NLEM:

In the study out of 512 drugs used, 459 drugs were included in the essential drug list 2011, ie 96.095% this is less than the Findings of Lenjisa et al, which shows that 98.7%, of drugs were from EDL. The drug's use from the EDL, helps in maximum safety of drugs use helps to satisfy the health care needs the population and for the optimal use of limited resources. The selection of drugs for framing EDL, is continuing process which conditions as well as the pharmaceutical and pharmacological knowledge.

Table 6: Prescribing from NLEM

| Number of Drugs | Frequency | Percentage |
|-----------------|-----------|------------|
| 1 DRUG          | 17        | 11.88%     |
| 2 DRUGS         | 29        | 20.27%     |
| 3 DRUGS         | 28        | 19.58%     |
| >3 DRUGS        | 70        | 48.95%     |
| TOTAL           | 143       | 100%       |

CONCLUSION

• The use of antibiotics was much more in the study, which should be minimize so that antimicrobial resistance can be minimized.

• The use of injection should be detected as it is expensive and requires trained health care personnel and chances of sepsis at the site of administration adherence to EDL is important for promoting rational prescribing of medicines, and the study shows that medicine were prescribed rationally more than 50% of all medicines were prescribed and dispensed irrationally

• The use of more and more antibiotics can be only reduced by educating the prescribers and patients regarding various disease and their spread conditions, antibiotic resistance and also encouragement of use of vaccinations must be done in order to reduce to use frequent use of antibiotics so that it may not cause resistance in the body.

• Poly pharmacy leads to drug chances of interactions and risk of ADRs and revealed that most of the patients were prescribed with the poly pharmacy and in brand names And also in the pharmacy more and more generics to be sold with communications of the prescribers so that more generic drugs can be prescribed instead of brand drugs by the health care providers or prescribers.

ACKNOWLEDGEMENT

As he is the first and the last, we thankfully bow with reverence before the almighty that is the source of all wisdom and knowledge, the creator who by his wishes and blesses made us to attain successful completion of this dissertation.

With great pleasure and sense of gratitude, we express our most cordial and humble thanks to our eminent respected guide Dr. RITTY SARA CHERIAN, Professor, Department of Pharmacy Practice, ABIPER, for his valuable guidance, keen interest, inspiration, unflinching encouragement and moral support throughout our project work. We express sincere thanks to him for stimulating discussion, meticulous guidance, illimitable enthusiasm and support since the beginning of our course.

We express our deepest sense of gratitude to PROF.K.RAMKUMAR, Principal of ABIPER, for his sincere gratitude and support.

We express our deepest sense of gratitude to our honourable chairman Dr. B.AVISHWANATH, for providing the facilities and extending his support.

CONFLICT OF INTEREST

There was no conflict of interest among the authors.

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