Drug Prescribing Pattern in Ophthalmology Out Patient Department of a Medical College

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ABSTRACT

Background: The pursuit of best and responsible use of medicines is the basis for concept and effort of Rational use of drug. RUD addresses steps in supply-use chain of drugs i.e. selection, prescribing, dispensing, monitoring and feedback. Hence periodic and continuous auditing of drug prescribing pattern is vital tool for promotion of RUD. Ophthalmology largely becoming an outpatient and day care department with almost nil Inpatient. So present study is to analyse drug prescribing pattern in Ophthalmology OPD. Methods: A prospective cross sectional study was done. Prescription were analysed for number of drugs per prescription, number of antibiotics, no of injection per prescription, Drugs from Essential Medicine List, Fixed dose Combinations. Results: A total of 176 prescriptions were analyzed the average number of drugs per prescription being 2.7 [0.78].Eye drops being the most common (81.01%) dosage form, injections were only 0.63% of all drugs. Percentage of prescription with Antibiotics were (36%) All drugs were prescribed only in brand name, none by generic name. 40.29% (940/1516) of drugs were prescribed from essential medicine list. Almost all prescriptions were having clear information on dosage form, dose, frequency and duration of treatment. Conclusion: Out of different parameters and drug prescribing indicators some are satisfactory e.g Information for patient in prescription. Some others like absence of generic name in prescription, high %age of antibiotics, lower % of drugs from EML needs attention. Conclusions: . It seems that awareness among the clinician about Rational prescribing is increasing. There is need of continuous endeavour to sensitise the clinician for rational use of drug.

Key words: Prescribing pattern, cross-sectional study, Prospective Study

INTRODUCTION

The pursuit of best and responsible use of medicines is the basis for concept and effort for the Rational use of drug (RUD).World Health Organization (WHO) defines RUD as “Medicine use is rational (appropriate, proper, correct) when patients receive the appropriate medicines, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost both to them and the community. Irrational (inappropriate, improper, incorrect) use of medicines is when one or more of these conditions is not met.”[1]

RUD actually addresses different steps in supply-use chain of drugs i.e. selection, prescribing, dispensing, monitoring and feedback. Analysis and evaluation of all these steps is important for its effective implementation.

Drug utilization studies gives a sound basis for better healthcare decisions for society and country at large. It has been defined as the marketing distribution, prescription and use of drugs in a society with special emphasis on the resultant medical and social consequences.[2]

Hence periodic auditing of drug prescribing pattern is vital tool for promotion of RUD that will improve the therapeutic efficacy, decrease the adverse drug reaction and cost effectiveness.

Ophthalmology is fast becoming a speciality largely only having outpatient and day care set up. Cataract surgery the commonest ophthalmic operation has become day case with
no admission. The concept of one stop cataract surgery has come up.\textsuperscript{[3]} It has gone even further with concept of Cataract surgery by appointment.\textsuperscript{[4]}

To investigate the rational use of drugs, WHO have established few core indicators, viz. prescribing indicators are one of them. Prescribing indicators included number of drugs prescribing per encounter, percentage of drugs prescribed by generic name, percentage of encounter by injection and antibiotics prescription and percentage of drugs prescribed from essential medicine list (EML).\textsuperscript{[5]} Prescription is written order and also a medico-legal document by authorized person. Apart from mentioning the appropriate drugs, its formulation, its doses, route, frequency and duration also important.

So it becomes important to investigate the current prescription pattern in Ophthalmology OPD. In this background, the present study was conducted to access the drug prescribing pattern and correct prescription writing practices for the eye disorders.

METHODS

The study was conducted at the Department of ophthalmology and Pharmacology. Study was approved by Institutional Ethics Committee. Data was collected from the out-patients unit of the ophthalmology OPD. The patients were enrolled on their first visit after taking informed consent. Systemic Random sampling was used with a sampling interval of 15. A total of 176 prescriptions were analysed. Only the medications used for ocular disorders were considered. The patient with refractive error were not included in the study as the drug treatment was largely not in their prescription. Any treatment given in the operation theatre was also not included. All drugs information were recorded in study proforma that includes Prescribed Drugs brand and generic name, dose, route of administration, dosage form, frequency of drug administration, and duration of therapy.

Prescriptions were analysed for average number of drugs, number of antibiotics and number of antibiotics per prescription, percentage of drugs prescribed by generic name. It was also assessed that complete dosage form, frequency and duration of drug therapy were mentioned. Numbers of drugs prescribed from essential medicine list were also noted. Essential medicines as defined by the WHO are those drugs that satisfy the health-care needs of the majority of the population; they should therefore be available at all times in adequate amounts and in appropriate dosage forms, at a price the community can afford.\textsuperscript{[6]} We have taken the National List of Essential Medicines 2015 prepared by CDSCO as reference.\textsuperscript{[7]}

After checking completeness of data the proforma were analysed using the statistical package for social sciences (SPSS) program version 16 Descriptive statistics were used to analyse the data.

RESULTS

A total of 176 prescriptions were analysed. The mean age of the subjects was 43.82 years (SD:20.97). Out of these male patients were 92 (52.27%) and female 84 (47.72%). The minimum no of drug in a prescription was 1 and maximum 4 and the average number of drugs per prescription was 2.69 (SD:0.78) [Table 1]

### Table No 1: Distribution of No of Drug Per Prescription

<table>
<thead>
<tr>
<th>No of Drugs Per Prescription</th>
<th>No of Prescription n=176</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3 (1.7%)</td>
</tr>
<tr>
<td>2</td>
<td>82 (46.59%)</td>
</tr>
<tr>
<td>3</td>
<td>57 (32.38%)</td>
</tr>
<tr>
<td>4</td>
<td>34 (19.31%)</td>
</tr>
</tbody>
</table>

There was at least one antibiotic in 63 prescriptions (36%) with 3 prescriptions having two antibiotics. Only 2 prescriptions were having injection. Out of 474 total drugs used 191 were from Essential Medicine List and 88 fixed dose combinations. There percentage is being described in [Graph 1]

### Graph 1: Description of Percentage of Antibiotic, Percentage of Injection, Percentage of Drug from EML, Percentage of FDC out of total Drugs.

As for dosage form is concerned drops were the most common. Different Dosage form has been detailed in [Table 2].

### Table No 2: Different Dosage form out of Total Drugs

<table>
<thead>
<tr>
<th>Dosage Form</th>
<th>No of Drugs n= 474</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Drops</td>
<td>384 (81.01%)</td>
</tr>
<tr>
<td>Tablets</td>
<td>58 (10.33%)</td>
</tr>
<tr>
<td>Ointment</td>
<td>22 (46.64%)</td>
</tr>
<tr>
<td>Gel</td>
<td>7 (1.47%)</td>
</tr>
<tr>
<td>Injection</td>
<td>3 (0.63%)</td>
</tr>
</tbody>
</table>

All prescriptions were prescribed only in brand name and none were in generic name. The routes of drug administration, Dosage, Frequency were mentioned in all prescriptions whereas Dosage Form was not mentioned in 4 (2.27%) and duration of treatment was not mentioned in 23 (13.06%) prescriptions.

The antibiotics eye drops, carboxy methylcellulose, Ant allergic eye drops and steroid eye drops were among the commonly prescribed drugs.

DISCUSSION

For effective health care of individual and society at large utilisation of resources in the best possible manner is
important. Rational use of Drugs is a key concept for it. Efficacy Safety suitability and cost should be factor for selection of a particular drug for a patient. In this regard drug utilization studies are important tool for assessing current trend of prescribing and giving feedback for any possible course correction.

The first prescribing indicator is average number of drugs per prescription. It gives an idea about polypharmacy. A lower number of drug per prescription indicate less chance of drug interaction, less chances of ADR and better compliance, indirectly it also indicates more chances of correct diagnosis. In the present study, average number of drugs per prescriptions was 2.69 (SD:0.78). It is fairly low and comparable to other studies in ophthalmology. [8,9]

The percentage of prescription with antibiotics was 36%. All were in the form of topical eye drops except 3 as injections. Some other studies in ophthalmology prescription pattern has also reached to comparable results. [10] Although specifically for ophthalmic condition no guidelines are available but The world medicine situation 2004 document an analysis of 35 countries with respect to percentage of prescriptions having antibiotics in general disease conditions found mean of 44.8% with 76.5% as maximum and 22% as minimum.[11] Anyway 36% is not a low figure and should be looked into it. Role of antibiotics in conditions like conjunctivitis need a revisit.[12,13]

Eye drops were the most common dosage form used. Ointment or gel are not favoured much. However as only 5% (approx.) of drug reaches to ocular tissues with drops there is need to develop more efficient drug delivery system.[14] Although topical route is regarded quite safe, but they may also lead to systemic toxicity if not used properly.[15]

In the present study none of the drugs were prescribed with generic name although WHO strongly recommends to use the generic (non-proprietary) name. Prescribing in generic removes expressing of opinion or possible bias in some cases for a particular brand. The brand drugs may be expensive for the patient unnecessarily. Although concern for more spurious and substandard among generic drugs are often raised but Report on Countrywide Survey by Central Drugs Standard Control organization (CDSCO) does speak about spurious and substandard drugs among branded drugs also.[16] The fact of the matter is spurious or counterfeit drugs are involved in both generic and branded products throughout the world. Strict quality regulation stringent policies, and legal actions for violators are required to tackle this problem. [17]

All the prescriptions were written legibly and clear with all the information about dose, frequency, dosage form mentioned in almost all prescription. It may be attributed to the many reports of prescription error and increasing awareness among the clinicians.

In the present study 191 drugs (40.29%) were from EML. Essential Medicine list promoted by WHO with emphasis on its preparation by individual countries in accordance with their need and available resources is basically very important for Rational use of Drug and Evidence Based Medicine. It includes only those drugs that have proven efficacy safety and suitability for the health care need of majority of population. At the same time it should also be looked into that drug in different dosage form should be sufficiently available in EML. Only one Antiviral eye drop, and only one Anti-inflammatroy drop is in the EML. As far as Antibiotic drops are concerned only Ciprofloxacin, Gentamycin, Natamycin, Erythromycin are present in EML. Among Fluoroquinolones Animal and human studies have proved some other fluoroquinolones to be more effective than Ciprofloxacin.[18,19] Many other antibiotics can also be a potential candidate to be included in EML as eye drop.[20] There is need of wide choices of drugs with suitable dosage form available to ophthalmologist or at least a deliberation is needed on this aspect.

CONCLUSION

It is concluded that on many parameters and prescribing indicators the prescribing pattern at institute is satisfactory specially complete drug Information for patients in prescription. Some others parameters needs improvement like absence of generic name in prescription, high percentage of antibiotics, lower percentage of drugs from EML. It seems that awareness among the clinician about rational prescribing is increasing. Still further improvement in the use of antibiotic and preparation of EML considering the requirement of specialities and suitable dosage form are the areas of continuous improvement. There is need of continuous endeavour to sensitise the clinician for rational use of drug.

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