DRUG UTILIZATION PATTERN IN ACNE VULGARIS IN SKIN OUTPATIENTS DEPARTMENT OF A TERTIARY CARE TEACHING HOSPITAL AT DEHRADUN, UTTARAKHAND

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ABSTRACT

Background: Irrational prescription of drugs is a common occurrence in clinical practise.

Aims & Objective: The principal aim of drug utilization studies is to facilitate the rational use of drugs in population.

Materials and Methods: A total of 238 prescription of patients of acne vulgaris were analyzed for 6 months in Dermatology OPD by Pharmacology department of SGRRIM & HS, Dehradun to study the drug utilization pattern, using WHO drug use indicator.

Results: A total of 238 prescriptions were analysed, male: female ratio was 1:1.07, mean age was 21.67 ± 0.51 years, majority of the patients were unmarried 153 (64.28%), students 192 (80.68%), non-vegetarian 121 (50.84%), belongs to middle socio-economic group 213 (89.49%). Total 1135 drugs were used, oral formulations 471 (41.50%), topical 664 (58.50%), 35 (3.08%) FDCs (fixed dose combination) were prescribed. 4.76 drugs per prescription were prescribed. Antibiotics 204(43.31%) were most commonly used oral drugs. 620 (93.37%) single topical preparations and 44 (6.63%) topical combination preparations of steroids, antibiotics and antifungals were prescribed. All drugs were prescribed in brand names.

Conclusion: The prescriptions revealed polypharmacy. This study can help to provide feedback to the prescribers, thereby increase in awareness and improve patient care by rational utilisation of drugs.

Key Words: Acne Vulgaris; Dermatology; Drug Utilization; Fixed Dose Combination

Introduction

Skin diseases are common in developing countries, accounting for great morbidity and form a large portion of workload in OPD. The drug utilization research or studies are the powerful exploratory tools to ascertain the role of drugs in the society which refers to the marketing, distribution, prescription, and use of drugs with special emphasis on the medical, social and economic consequences.[1] The irrational use of drugs is a major problem of present day medical practice and its consequences include ineffective treatment, unnecessary prescription of drugs leading to adverse effects and economic burden on patients and the society.[2] Rational drug prescribing is defined as the use of the least number of drugs to obtain the best possible effect in the shortest period and at a reasonable cost.[3] Therefore periodic auditing of prescriptions is essential to increase the therapeutic efficacy, decrease adverse effects and provide feedback to prescribers.[4] The prevalence of acne vulgaris is very high in dermatology OPD and data regarding drug usage pattern is lacking. This study was done to describe the prescribing pattern of prescriptions in Acne vulgaris patients in Dermatology OPD to promote rational prescribing.

Aims: To study drug utilization pattern in acne vulgaris in skin out patients in a tertiary care teaching hospital at Dehradun and use it as a tool to promote rational prescribing.

Materials and Methods

This study was conducted by the Department of Pharmacology in dermatology OPD of SGRRIM & HS, Dehradun for a period of 6 months from July 2012 to December 2012. A total of 238 prescriptions were evaluated for Acne vulgaris using WHO drug indicators. The prescription data were taken and analyzed for the trends in drug use and rationality of prescriptions. Approval of the Institutional Ethics Committee was obtained prior to commencement of the study. Written informed consent was taken from all the participants. The WHO indicators which were analysed were the drug formulations, fixed drug combinations, drugs prescribed from National Essential Medicine List 2011, Generic drugs, Defined daily dose and prescribed daily dose.

Results

A total of 238 prescriptions were analysed. Male: female ratio was 1:1.07, mean age was 21.67 ± 0.51 years. 213

(89.49%) patients belonged to middle socio economic group. Majority of the patients were students 192 (80.68%). Unmarried were 153 (64.28%) and Non vegetarians 121 (50.84%) (Table 1).

Table-1: Demographic profile of patients

Parameters	Number/ Percentage
Total Patients	238
Men: Women ratio	1: 1.07
Mean age	21.67 ± 0.51 years
Unmarried	153 (64.28%)
Students	192 (80.68%)
Non-vegetarian	121 (50.84%)
Middle socioeconomicclass	213 (89.49%)

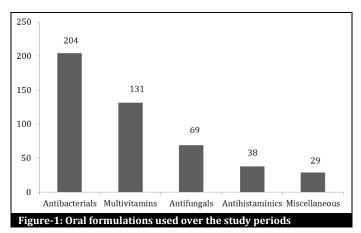**Table-2: Drug formulations, drug/prescription and drug with brand names**

Parameters		Number/ Percentage
Total medicines		1135
Oral 471 (41.5%)	Single	460(97.66%)
	Combination	11(2.34%)
Topical 664 (58.5%)	Single	640(96.38%)
	Combination	24(3.62%)
Fixed drug combinations		35 (3.08%)
Drugs prescribed/ prescription		4.76
Brand names		100%

Table-3: Oral drugs prescribed over the study period

Oral Drugs	Number /Percentage
Antibiotics	204(43.31%)
Multivitamins	131(27.81%)
Antifungals	69(14.64%)
Antihistaminics	38(8.06%)
Miscellaneous	29(6.15%)

Table-4: Drugs prescribed from National Essential medicine List 2011

Class	Drug	Numbers
Antibiotics	Azithromycin	175
	Clindamycin	205
Antihistaminics	Cetrizine	29
Antifungals	Fluconazole	44

Table-5: Daily Define Dose (DDD)

Name of Drug	No. of Tablet Dispensed	Prescribed Strength / Item (mg) PDD	Defined Daily Dose (mg)	Total DDDs Used	DDD / Patient Day
Azithromycin	175	500	1000	87.5	0.36
Fluconazole	44	150/7	400/7	16.5	0.07
Cetrizine	29	10	10	29	0.12

Figure-1: Oral formulations used over the study periods

A total of 1135 drugs were prescribed during the study period. Oral formulations were 471 (40.02%), out of which single oral 460 (97.66%) and combination was 11 (2.34%). Total topical 664 (57.01%), and out of which single topical 640 (96.38%) and 24 (3.62%) combination topical were prescribed. 35 (3.08%) FDCs (fixed dose combination) and 4.76 drugs were prescribed per prescription. All drugs were prescribed by their brand names (table 2). Amongst oral drugs, 204 (43.31%) antibiotics were most commonly prescribed drugs, followed by multivitamins 131 (27.81%), antifungals 69 (14.64%), antihistaminics 38 (8.6%) and miscellaneous drugs 29 (6.15%) (Table 3).

The most frequently prescribed drug amongst antibiotics was Azithromycin, amongst antifungals was fluconazole, amongst antihistaminics was Cetrizine and in miscellaneous cateogory was Benzoyl peroxide. 175 (85.78 %) Azithromycin, 44 (63.76%) Fluconazole, 29 (74.35%) Cetrizine, 17 (58.63%) Benzoyl peroxide was prescribed. 205 (30.87%) Clindamycin was the most frequently prescribed single topical preparation followed by 165 (24.85%) nicotinamide. 38 (86.36%) Mometasone and Miconazole was most frequently prescribed topical combination. Out of 1135 drugs, 453 (39.92%) drugs were prescribed from National Essential medicine List (NEML, 2011). Non-Essential medicines were 682 (60.08%) (Table 4).

Defined daily dose (DDDs) was calculated for the most commonly used drugs like Azithromycin, Fluconazole and Cetrizine and for the total patients (238) attending the skin OPD during the study period. The DDDs for Azithromycin, Fluconazole and Cetrizine were 87.5, 16.5 and 29 respectively. 175 tablets of Azithromycin were prescribed with PDD of 500 mg, 87.5 DDDs used and with DDD per patient per day of 0.36. Total 29 cetrizine tablets prescribed for acne vulgaris with PDD of 10 mg, 29 DDDs used and with DDD per patient per day of 0.12. 44 tablets of Fluconazole were prescribed for Tinea infection with PDD of 150/7 mg, 16.5 DDDs used and with DDD per patient per day of 0.07.

Discussion

Skin disorders constitute 10-30% of outpatient attendance in any hospital and are often easily noticed by others, hence a cause of great social concern to the patient. A prescription by a doctor is a reflection of physician's attitude towards the disease and the role of drug in its treatment. The ultimate outcome of the dermatological prescription analysis gives a message to

the prescribing physician to achieve rational medical care and provides an insight into the nature of health care at that facility.[5]

In the present study, a total of 238 prescriptions were analysed. The patients had a mean age of 21.67 ± 0.51 yrs which was comparable to the study by Kaur S, where the most common age group was between 20-29 years.[6] Most of patients belonged to middle socio-economic 213 (89.49%) which was comparable to previous study by Narwane et al, where 84.66% patients belongs to middle socio-economic class.[7] Acne vulgaris is a disease of younger age group which was evident from the present study. Out of 1135 medicines prescribed, oral formulations were 471 (40.02%) and topical 664 (57.01%) which was consistent with previous study where 38.1% and 60.2% drugs were administered by oral and topical route respectively.[8] Out of 664 topical drugs prescribed, single topical preparations were 640 (96.38%) while combination topical preparations were 24 (3.62%). The values are comparable to previous study where 94.2% and 5.8% were single and combined topical preparations prescribed respectively.[8] Use of topical preparations were usually preferred for treating skin-diseases as they have site specific action, less systemic absorption resulting in less side effects and convenient for patient use.

FDCs (fixed dose combination) were 35 (03.08%) which is comparable to previous study by Narwane et al 1.9% and much lower than another study in which 36.6% FDCs were prescribed respectively.[7,8] The chronic nature of acne and the multi-modality approach being used makes the use of fixed dose combinations an inevitable option. The use of fixed dose combination may help to reduce the cost and improve patient compliance. 4.76 drugs were prescribed per prescription which is higher than previous studies where 3.26 and 2.7 drugs were prescribed per prescription respectively.[7,8] It is evident that there is good deal of tendency towards polypharmacy in dermatology for the symptomatic treatment for severe and troublesome symptoms of acne reported by the patients. The average number of drugs per prescription must be kept as low as possible to avoid drug interactions, adverse drug reactions, poor medication compliance and increased cost of prescription. All drugs were prescribed by their brand names which are consistent with a previous study where 100% drugs were prescribed by brand names.[9] Poor prescribing of generic drugs can be because of concern about their quality.

Azithromycin was the most frequently prescribed oral antibiotic 175 (85.78%) which is not consistent with previous studies where combination of Erythromycin and Benzoyl peroxide was most frequent.[6] Fluconazole the most frequently prescribed antifungal 44 (63.76%) which is comparable to previous study where fluconazole was the most commonly prescribed oral antifungal.[10] Cetirizine was the most frequently prescribed antihistaminic 29 (74.35%) which was consistent with other studies.[11] while in miscellaneous drugs, Benzoyl peroxide was the most frequently prescribed drug 17(58.63%). Combination products with Benzoyl peroxide reduce acne lesions and decrease the incidence of antibiotic resistance. This was comparable with other studies.[6] Use of topical Clindamycin 205 (30.87%) was very high in the present study. It is one of the first line drugs for the treatment of acne vulgaris. Out of 1135 drugs, 453 (39.92%) drugs were prescribed from National Essential medicine List (2011) which is lesser than other study where 51% and 95.78% drugs were prescribed from Essential Medicine List respectively.[12,13]

In drug utilization studies, Defined Daily Dose (DDD) is an important WHO indicator for rational prescribing. DDD should ideally be presented as numbers of DDD per 1000 inhabitants per day. The DDDs were calculated for the most frequently prescribed drugs. DDDs for Azithromycin were 87.5, fluconazole was 16.5 and for cetirizine were 29 respectively.

Conclusion

The present study showed Polypharmacy, more use of Non Essential medicines and Non-Generic (Branded) drugs. The prescription audit can be an eye opener for the prescribers. Such periodic audits should be conducted to rationalize the prescription, reduce errors and suggest effective management of skin diseases. The hospital administration can look into the issues in the hospital by implementing a formulary into the system so that physicians restrict their prescribing in generic names and effective therapy to the patients as essential drugs will be incorporated in hospital pharmacy. This study can help to provide feedback to the prescribers, thereby increasing the awareness and improve patient care by rational utilization of drugs.

References

1. World Health Organization. Introduction to Drug Utilization Research. Geneva: World Health Organization. 2003. p. 6-48.

2. Dagnew M, Erwin G. Epidemiology of Common Transmissible Skin Diseases among primary school children in North-West Ethiopia. Trop Geog Med 1991;43:152-5.

3. Williams HC. Epidemiology of Skin Disease. In: Tony B, Stephen B, Neil C, editors. Rook's Textbook of Dermatology. 8th ed.,Vol 1.Oxford: Blackwell Scientific Publications; 2010. p. 2-7.

4. Al Rubaiy KK. Determinants and illness behaviour of patients with skin diseases in Basrah Governorate. PhD thesis, Basrah University College of Medicine; 2001:p.6-16.

5. Thappa DM. Microanatomy of the Skin. Thappa DM, (edi). In: Essential in Dermatology Microanatomy of the skin. 2nd ed. New Delhi; Jaypee Brothers Medical publishers; 2009. p. 1-8.

6. Kaur S. Topical corticosteroids usage in dermatology. Int J Clin Pharm Therap and Toxic 1991;29:48-50.

7. Narwane SP, Patel TC, Shetty YC, Chikhalkar SB. Drug utilization and cost analysis for common skin diseases in dermatology OPD of an Indian tertiary care hospital: a prescription survey. British Journal of Pharmaceutical Research 2011;1:9-18.

8. Tikoo D, Chopra SC, Kaushal S. Evaluation of drug use pattern in dermatology as a tool to promote rational prescribing. JK science 2011;13:128-31.

9. Pavani V, Mihir YP, Shravani K, Prabhakar RV. Study of prescribing pattern for evaluation of rational drug therapy in Warangal. Indian journal of pharmacy practice.2011;4:77-9.

10. Yuwnate AH, Chandane RD, Giri KR, Yunati MD, Sirsam SS. A multi centre pharmaco-epidemiological study of dermatological disorders in Wardha district. Int J Basic Clin Pharmacol 2013;2:751-6.

11. Sarkar C, Das B, Sripathi H. Drug prescribing pattern in dermatology in a teaching hospital in western Nepal. Journal of Nepal Medical Association 2001;41:241-6.

12. Georgekutty KV, Sambasivam N, Nagarajan M. A Study on drug prescribing pattern in Madurai city. Indian J Pharmacol 2002;34:361-2.

13. Biswas NR, Biswas RS, Pal PS, Jain SK, Malhotra SP, Gupta A, et al. Pattern of prescriptions and drug use in two tertiary hospitals in Delhi. Indian J Physio Pharmacol 2000;44:109-12.

14. Shah AM, Dhanani JV, Shah RB, Agrawal A, Gajjar BM. Evaluation of prescription pattern in terms of essentiality and rationality and assessment of Hospital pharmacy services utilization in tertiary care teaching rural hospital. Indian J Pharm Pract 2010;3:11-5.

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