



Evaluation of Drug Use Pattern in Dermatology as a Tool to Promote Rational Prescribing

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Abstract

The present study was undertaken to evaluate the format, prescribing pattern and rationality of prescriptions of the patients attending Dermatology Out Patient Department of a tertiary care hospital for a period of one year. A total of 5,355 prescriptions were analyzed in which 17,459 drugs were prescribed with an average of 3.26 drugs per prescription. The patient's name and age was mentioned in all the prescriptions while superscription, dosage form, duration of therapy and prescriber's identity was written in 95.4%, 100%, 80.7% and 23.5% prescriptions respectively. Out of all drugs, 15.4% were from National Essential Drug List of India. Antihistamines (16.9%) were the most common group of drugs used, followed by corticosteroids (15.3%). Most of the drugs were given by topical route (60.2%). Dosage and dose schedule of drugs was written for 91.2% and 94.7% drugs respectively. The study showed a tendency towards polypharmacy and prescribing by proprietary names.

Key Words

Dermatology, Prescriptions, Rational Prescribing

Introduction

Prescription order is an important document between the physician and the patient. It is an order for a scientific medication for a person at a particular time. It brings into focus the diagnostic acumen and therapeutic proficiency of the physician with instructions for palliation or restoration of the patient's health (1). Prescribing of drugs is an important skill, which needs to be continuously assessed and refined suitably and it reflects the physician's skill in diagnosis and attitude towards selecting the most appropriate cost effective treatment (2).

Drug utilization has been defined as the marketing, distribution, prescription and use of drugs in a society with special emphasis on the resulting medical and social consequences. The assessment of drug utilization is important for clinical, educational and pharmaco-economic purposes (3). Setting standards and assessing the quality of care through performance review should become part of everyday clinical practice. Medical audit oversees the observance of standards of medical treatment at all levels of the health care delivery system.

The World Health Organization (WHO)-India programme on the rational use of drugs aims at promoting

rational prescribing through a multi-pronged strategy, which includes intervention to correct drug use problems, adoption of essential drug list, development of standard treatment guidelines, determining and restricting irrational prescribing (4).

Methods

The present study was conducted over a period of one year in the Out Patient Department (OPD) of Dermatology at a tertiary care hospital of Ludhiana after approval from Institutional Ethical Committee. The prescriptions of all the patients attending the Dermatology OPD during the period of study were analyzed except the older patients (more than the one visit) and patients with leprosy (as they have separate cards) who were excluded.

The prescription data was taken from the OPD cards and analyzed for trends in drug use, rationality of prescription along with adherence to prescription format (5,6). To analyze trends & rationality in prescribing patterns, total number of drugs prescribed, average number of drugs per prescription, percentage of drugs prescribed from National Essential Drug List (2003) (5);

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percentage of drugs prescribed by generic name, brand name, route of administration and physical methods used (if any) were noted. The data was further analyzed for the most commonly prescribed drug group(s), percentage of: oral drugs, topical preparations (combination/ single preparations), injectables, drug dispensed from specialized Dermatology pharmacy of the hospital, prescriptions with combination of topical and oral agents, and various cleaning agents. The prescriptions were also assessed for dose strength, dosage schedule, duration of therapy and use of any banned drug formulations. The format of prescription was analyzed for patient identification parameters (name, age, gender, address of patient), superscription (Rx), inscription (drug name, dose and dosage frequency), subscription (directions to pharmacist about instructions & use of drugs), signa (instructions to patient about drug use), prescriber's identity (name, registration, address of prescriber) and date of prescription (7). The copying and analysis was done by an independent observer (DT) who did not participate in the prescribing decision. The data is presented in mean and percentages.

Results

A total of 5,355 prescriptions for new patients attending the Dermatology OPD were included for analysis. The findings pertaining to prescription format are shown in Table I which shows that all the prescriptions carried the date; name, age, gender and address of the patients as they are already printed on the hospital OPD cards. The superscription Rx was written in 95.4% prescriptions while dosage form and name was mentioned for all the drugs. None of the prescriptions carried instructions to the pharmacist while special instructions to the patient were mentioned in 9.5% prescriptions and the rest of the patients were mostly given verbal instructions. Prescriber's identity was legible in only 23.5% prescriptions but none had the registration number of the prescriber because it is a hospital OPD and not a private clinic, so writing the registration number is not mandatory.

These patients were prescribed 17,459 drugs, with an average of 3.26 drugs per prescription. Out of all the drugs, 15.4% drugs were from the National Essential Drug List of India. Only 19.3% drugs were prescribed under their respective generic names while proprietary names were used for 80.7% drugs. (Table II). The fixed-dose combinations accounted for 36.6% drugs prescribed. Percentage of drugs prescribed from the hospital pharmacy was 15.7 % (2,748.). Dosage and dose schedule was written for 91.2% and 94.7% drugs respectively and duration of therapy was mentioned in 80.7% prescriptions. None of the prescriptions carried

banned drug formulations. Among the drugs prescribed, antihistamines were the most commonly used (16.9%), followed by corticosteroids (15.3%), antibacterials (14.4%) (Fig. 1). Out of total 2938 prescribed antihistaminics, 98.2% were prescribed by oral route and 1.8% by injectable route. Among the total 2,668 of corticosteroids prescribed, 87.7% were topical 8.1% by injectable route and only 4.2% by oral route. A total of 2518 antibacterials were prescribed, out of which 56% by topical route, 43.7% oral and 0.3% as injectables. Vitamins, minerals and antioxidants comprised about 1,856 drugs, out of which 67.9% were advised by oral route and 32.1% topically. Among the antifungals prescribed (1,293), 55.4% were topical, 44.4% oral, and 0.2% injectable preparations. A total of 969 emollients, creams and 892 antiseptics & ectoparasiticides were prescribed and all by topical route. Antiviral agents (0.4% of the total number of drugs) were mostly advised by oral route (67.6%) and 32.4% were topical preparations. A total of 4251 (24.3 %) miscellaneous drugs were prescribed and 15.6% of them were given as oral drugs, 83.7% as topical agents and 0.7% as injectables (Table III)

Out of all the drugs prescribed, 60.2% were advised to be administered by the topical route, 38.1% by the oral route and 1.7% by injectable route. Prescriptions which contained both topical and oral drugs were 78.9%. Out of all the topical agents, 94.2 % were given as single preparations and 5.8% as combination agents. Out of the 308 injectables, 38.3% were advised to be administered by intramuscular injection, 23.7% by intravenous, 13.7% by intralesional, 12.3% by intradermal and 12% by subcutaneous injection (Fig. 2).

A total of 1.2% (207) cleaning agents were prescribed. Out of 292 physical therapy procedures done, 31.2% (91) were surfecation methods; 16.8% (49) radiofrequency ablation procedures and 16.8% (49) chemical cautery. These highly specialized dermato-surgical techniques are becoming a very integral part of the dermatological workload. The dermal surgeon needs diagnostic acumen and the ability to judge which of the many possible modes of treatment is appropriate for a particular lesion. Physical therapies were used as per need basis. They help in reducing the overall cost and give better results by avoiding the risk of adverse drug reactions by systemic or local drug administration.

Discussion

A large number of such studies have been carried out in developed countries. Quantitative and qualitative geographical differences do exist in patterns of drug consumption and hence results of studies conducted in developed countries cannot be applied to developing



Fig 1. Percentage Distribution of Various Drug Groups

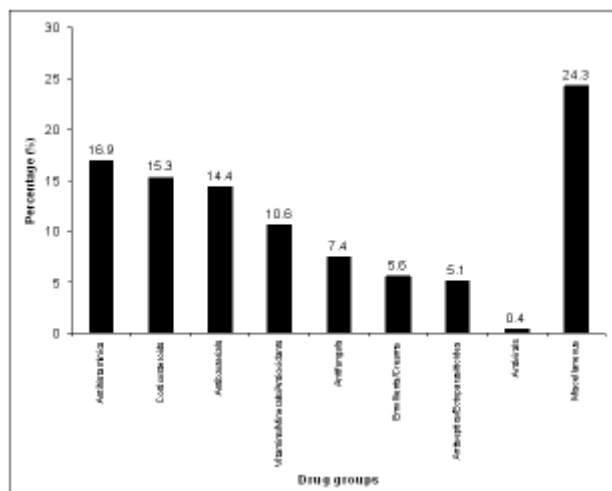
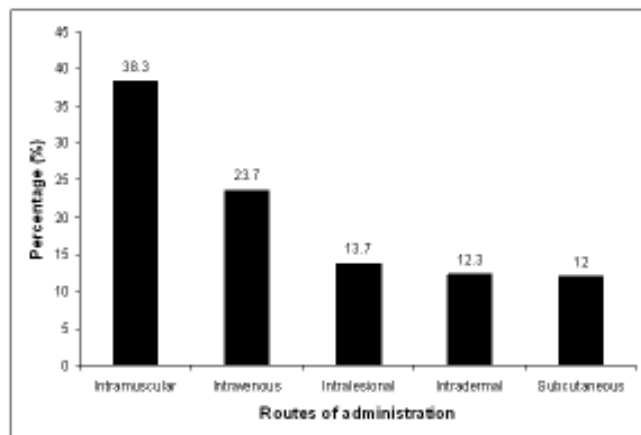


Fig 2. Percentage Distribution of Injectables According to their Route of Administration



countries. Though such studies have been done in India at both hospital and community level, yet they are not adequate enough to depict a clear picture of drug use (6). Average number of drugs is an important index of prescription analysis and in the present study, it was 3.26. Our findings were in conformity with some of the other hospital studies done in India which showed 2-3 drugs per prescription (6,8,9). It is evident that there is a good deal of tendency towards polypharmacy in dermatology for the symptomatic treatment for severe and troublesome symptoms reported by the patient. It is preferable to keep the average number of drugs per prescription as low as possible since higher figures always lead to increased risk of drug interactions, adverse drug reactions, poor medication compliance and eventually increased cost of prescription. The dose and dosage schedule were not mentioned in all the prescriptions and this can also lead to an increase in the overall cost of treatment due to

Table I. Prescription Format

Contents of prescription	Number of prescriptions n (%)
Date of prescription	5355 (100)
Name of patient	5355 (100)
Age of patient	5355 (100)
Gender of patient	5355 (100)
Address of patient	5355 (100)
Rx	5109 (95.4)
Dosage form and name	5355 (100)
Instructions to the pharmacist	—
Special instructions to the patient	509 (9.5)
Prescriber identity	
Signature of the prescriber	1259 (23.5)
Registration number and address of the prescriber	—

Table II. Analysis of Prescriptions

Observations	n (%)
Total number of prescriptions	5,355
Total number of drugs prescribed	17,459
Average number of drugs per prescription	3.26
Total number of drugs from EDL	2689 (15.4)
Total number of drugs prescribed by generic name	3370 (19.3)

Table III Distribution of Various Drug Groups and Their Routes of Administration

	Oral n (%)	Topical n (%)	Injectable n (%)	Total number
Antihistamines	2885 (98.2)	-	53 (1.8)	2938
Corticosteroids	112 (4.2)	2340 (87.7)	216 (8.1)	2668
Antibacterials	1100 (43.7)	1411 (56)	7 (0.3)	2518
Vitamins/ Minerals/ Antioxidants	1260 (67.9)	596 (32.1)	-	1856
Antifungals	574 (44.4)	716 (55.4)	3 (0.2)	1293
Emollients/ creams	-	969 (100)	-	969
Antiseptics/ Ectoparasiticides	-	892 (100)	-	892
Antivirals	50 (67.6)	24 (32.4)	-	74
Miscellaneous	663 (15.6)	3558 (83.7)	30 (0.7)	4251

inappropriate use of drugs by the patient. The most commonly prescribed drug group in our study was antihistamines followed by corticosteroids and antibacterials. Analysis of the prescription data revealed that allergic disorders were the most common diagnosis that explains the greater use of antihistamines. Among the total number of drugs prescribed, most of them were prescribed by the topical route followed by oral and injectable routes. Consistent data was reported by other



studies (9,10,11). The reason for high percentage of topical drugs being prescribed is that topical route has minimum side effects hence is the preferred route of administration in dermatology. Prescribing under a generic name is considered economical and rational but very few patients in the present study were prescribed generic drugs (19.3%) as compared to proprietary drugs (80.7%). Our results were consistent with other studies done by Biswas *et al.*(12)(6.32% generic & 93.68% brand drugs) and Shankar *et al.*(13) (32.6% generic & 67.4% brand drugs). Poor prescribing of generic drugs can be because of concern about their quality. Of the total drugs prescribed about 36.6% were fixed dose combinations. The chronic nature of the diseases and multi-modality approach being used makes the use of fixed dose combinations an inevitable option. The use of fixed dose combinations may help to bring down the cost and improve compliance (14).

Drugs from Essential Drug List (EDL) (5) constituted about 15.4% in our study, while it was reported as 95.78% by Biswas *et al.* (12) and 51% by Georgekutty *et al.* (15). As the institution is a private tertiary care hospital that has advanced treatment available, the newer drugs have been used which are not yet included in the EDL. Also as the institution is a private medical college so as such there is no compulsion to prescribe from the EDL but where ever possible, the due consideration has been given to prescribe from EDL. Drugs prescribed from our own dermatology pharmacy were 15.7% and most of them were cheaper as those compared to their counterparts available in the market due to lower production cost of these preparations in the in-house pharmacy.

Conclusion

The therapy provided in the above prescriptions were efficacious but there is a need to emphasize to all prescribers to adhere to the prescription format, to keep the average number of drugs per prescription as low as possible, encourage prescribing by generic name and from essential drug list which should be updated regularly and made available to all the physicians. Proper dosage form, frequency of administration and duration of therapy should be mentioned in all prescriptions to reduce the cost of treatment. Various intervention strategies like introduction of hospital formulary, essential drug list and prescription control (setting a level upto which a particular prescriber can be permitted to prescribe anti-microbial, immunosuppressant etc.) by institutional regulatory authorities should be planned. There is a clear need for development of standard treatment guidelines and educational initiatives to encourage the rational and appropriate drug use.

References

1. Ansari KU, Singh S, Pandey RC. Evaluation of prescribing pattern of doctors for rational drug therapy. *Indian J Pharmacol* 1998; 30: 3-6.
2. Kanakambal S, Muruges N, Shanthi M. Drug prescribing pattern in a tertiary care teaching hospital in Madurai (Tamil Nadu). *Indian J Pharmacol* 2001; 33: 223.
3. Shehwade DG, Pradhan SC. Auditing of prescriptions in a government teaching hospital and four retail medical stores in Pondicherry. *Indian J Pharmacol* 1998; 30: 408-10.
4. Mathur M, Dandiya PC. Prescribing pattern for outpatients in government hospitals in Jaipur. *Indian J Pharmacol* 2004; 36: 383-84
5. Tripathi KD. In: Tripathi M (eds.) List of Essential Drugs. Essentials of Medical Pharmacology. 6th Edn. :Jaypee Brothers Medical Publishers Ltd., New Delhi, 2003; pp. 843-46.
6. Minocha KB, Bajaj S, Gupta K. *et al.* A clinico pharmacological study of out patient prescribing pattern of dermatological drugs in an Indian tertiary hospital. *Indian J Pharmacol* 2000; 32: 384-85.
7. Sharma P, Kapoor B. Study of prescribing pattern for Rational Drug Therapy. *JK Science* 2003; 5(3): 107-9.
8. Badar VA, Shrivastava MP, Badwaik RT. *et al.* Surveillance of drug prescribing trends in skin OPD of IGMC. *Indian J Pharmacol* 2002; 34: 150.
9. Nithyanandan NA, Jhaj R, Balakrishnan S. *et al.* Prescription audit in a tertiary care center in rural Pondicherry. Proceedings "Pharmacology today progressing academia-industry interactions" New Delhi, 5-7th Dec. 2003; pp. 256.
10. Chawdhary S. Thesis on a prospective study on the drug prescribing pattern in cardiology and endocrinology units of the department of Medicine of Government Medical College, Jammu-both indoor and outdoor patients. 2002.(Unpublished)
11. Maini R, Verma KK, Biswas NR. *et al.* Drug utilization study in dermatology in a tertiary hospital in Delhi. *Indian J Physiol Pharmacol* 2002; 46: 107-10.
12. Biswas NR, Biswas RS, Pal PS. *et al.* Patterns of prescriptions and drug use in two tertiary hospitals in Delhi. *Indian J Physiol Pharmacol* 2000; 44: 109-12.
13. Shankar RP, Partha P, Nagesh S. Prescribing patterns in medical outpatients. *Int J Clin Pract* 2002; 56: 549-51.
14. Walter S. Regulation of fixed dose combination products (Regulatory challenges). *WHO Drug Information* 2003.14.
15. Georgekutty KV, Sambasivam N, Nagarajan M. A study on drug prescribing pattern in Madurai city. *Indian J Pharmacol* 2002; 34:361-62.