

Assessment of Drug Prescribing Patterns in Dermatology Outpatient Department in a Tertiary Care Hospital, Malabar, Kerala

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ABSTRACT

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Skin diseases in developing countries have a serious impact on people's quality of life. Occasionally skin diseases can be a manifestation of systemic diseases. A prospective study was carried out over six months (August 2010-January 2011) in the Dermatology outpatient department of tertiary care referral hospital in Malabar region of Kerala. A total of 500 cases were analyzed in which the total number of drugs was found to be 1230. The most commonly prescribed systemic agents were antihistamine (294) followed by antibiotics (181) & antifungal agents (49). The most commonly prescribed topical agents were topical steroids & its combination (236) followed by topical antifungal agents (124). This study reveals that generic prescription is very low and suggests that effort must be made to encourage prescribers for generic prescribing which may have a multitude of benefits including cost effectiveness. Having a steroid and antibiotic prescribing policy will go a long way to minimizing inappropriate prescriptions and also standard treatment guidelines for the treatment of common disease should be formulated.

Keywords: Skin diseases, dermatology,

INTRODUCTION

Skin diseases in developing countries have a serious impact on people's quality of life, it is more so in India where climate, socio-economic status, religions and customs are widely varied in different parts of the country. Occasionally skin diseases can be a manifestation of systemic diseases. Moreover, the skin is an important target organ for HIV infection^{1,2}, that could be prevented or controlled by, among other measures, appropriate use of drugs.

Rational use of drugs is defined by World Health Organization (WHO) as "patients receive medicines appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community"³. WHO highlights two concomitant problems regarding the drug situation in the developing world: one out of three people living in the developing world are in need of essential drugs although there are concurrent higher rates of inappropriate drug-use and drug resistance⁴. WHO has estimated that at least one-third of the world's population lacks access to essential drugs. In poorer areas of Asia and Africa this figure may be as high as one-half. Millions of children and adults die each year from diseases that could have been prevented or treated with cost-effective and inexpensive essential drugs.

The WHO also estimates that 50 percent of all medicines are inappropriately prescribed, dispensed, or sold⁵. According to the 1985 WHO Conference of Experts on drug-use, appropriate or rational use of medicines is only when drugs are prescribed when clinically indicated, and at correct dosages for the right duration and at the lowest cost both to the patient and their community. Inappropriate drug use has direct and indirect cost to the health system and individuals. It is estimated that third world countries spend 30-40% of their total health budget on drugs some of which are useless and expensive and doubles their expenditure on drugs every 4 years while GNP (Gross National Product) doubles every 16 years. According to planning commission paper of 2009, health care expenses were responsible over half of all cases decline into poverty. It was estimated in 2004-05, an additional 39 million people were pushed into poverty due to out of pocket payment. National sample survey office (NSSO) data for the same year had shown that of the total medical expenditure percapita, medicines alone accounted for 74% of the expenses in the rural and 67% in urban areas. It is more in non-government sector. It indicates huge impact of rising price on health expenditure. This expenditure can be minimized by prescribing drugs by generic name and selection of drugs from essential medicine list⁶. Therefore, periodic evaluation of drug utilization patterns need to be done to enable suitable modifications in prescription of drugs to increase the therapeutic benefit and decrease the adverse effects. People often have very rational reasons for using medicines irrationally. Causes of irrational use include lack of knowledge, skills or independent information, unrestricted

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availability of medicines, overwork of health personnel, inappropriate promotion of medicines and profit motives from selling medicines. The study of prescribing patterns seeks to monitor, evaluate and if necessary, suggest modifications in the prescribing behavior of medical practitioners to make medical care rational and cost effective⁷.⁸. To monitor, standardize and afford Comparability of results, WHO in collaboration with the International Network for the Rational Use of Drug (INRUD) developed core indicators for assessing drug use⁹. This study utilized these drug-use core indicators to describe patterns of drug use at dermatology department in a tertiary care hospital to provide feedback to the prescriber and to create awareness among them about rational use of medicines. In this study an attempt was made to assess the drug prescribing patterns in dermatology outpatient department in a tertiary care hospital and to obtain information on demographic characteristics of the patients selected for analysis. Also an attempt was made to describe the patterns of prescribing practices by using WHO/INRUD drug-use core indicators like

- To evaluate average number of drugs per encounter
- To determine percentage of drugs prescribed by generic name
- To determine percentage of encounter with an antibiotic prescribed
- To determine percentage of drugs prescribed from WHO essential drug list
- To determine percentage of fixed drug combination from WHO essential drug list

METHODOLOGY

A prospective study was carried out over six months (August 2010-January 2011) in the Dermatology outpatient department of tertiary care referral hospital in Malabar region of Kerala after obtaining requisite permission. Hospital caters the treatment requirement to the people from all over north Kerala. Ethical approval for the study was obtained from the hospital ethical committee. Confidentiality and anonymity of the patients were maintained during the study. All prescriptions issued to patients attending the dermatology outpatient department during this period following each day's consultation were copied out from the case files and recorded in data collection forms adapted from WHO guidelines on how to investigate drug use in health facilities⁹. Data was obtained from a total of 500 prescriptions which includes age and gender of the patients, the diagnosis, the drugs prescribed, their strength, frequency, route of administration and duration of treatment and the prescriptions were subjected to measuring the appropriateness of prescription. Misuse of any one of these parameters was taken as indication of a problem prescription.

The Prescriptions were subjected to critical evaluation using WHO prescribing indicators.

- a) Average number of drugs per encounter was calculated by dividing the total number of different drug products prescribed by the number of encounters surveyed.
- b) Percentage of drugs prescribed by generic name was determined by dividing the number of drugs prescribed by generic name by the total number of drugs prescribed, multiplied by 100.
- c) Percentage of encounters with an antibiotic prescribed were calculated by dividing the number of patient encounters during which an antibiotic was prescribed by the total number of encounters surveyed, multiplied by 100.
- d) Percentage of drugs prescribed from essential drug
- e) Percentage of fixed-dose combination prescribed

All the findings were recorded, compiled, tabulated and analyzed. The analyzed data were expressed in percentage.

RESULTS

A total of 500 cases were analyzed. The catchment area of our hospital is Malabar region of Kerala; Fig 1 & 2 provides the gender distribution & age wise distribution of patient in dermatology OPD, respectively. 248 patients (49.6%) were found to be female followed by male, 252 patients (50.4%). The age group 20-29 yrs was accounted for the highest number of 125(25%) of patients. Total number of drugs in 500 prescriptions was found to be 1230. Number of drugs per prescription varied from 1 to 7 with average of 2.46(Fig 3). Most of the prescription consists of minimum of 3 drugs (185prescription, 37%). Only 1% drugs were prescribed in generic name. Fig 4 shows the appropriateness of the prescription which indicates the good rational prescription habit of the doctors. Injectables were found to be rarely prescribed in this OPD (1 out of 1230drugs). The most commonly prescribed systemic agents were antihistamine (294) followed by antibiotics (181) & antifungal agents (49). The most commonly prescribed topical agents were topical steroids & its combination (236) followed by topical antifungal agents (124). All systemic agents were given orally except (Inj.kenacort; triamcinolone for treatment of alopecia Areata). Major therapeutic agent found among the drug category is presented in Fig 6, results reveal that levocetizine was found to be the major drug among the antihistamine group, Fluconazole among antifungal, Clobetasole among steroidal agent and Roxithromycin was found among the antibiotic agent. Analysis of steroids revealed that 262 patients require steroids and its combination with antibiotics. Out of 262 patients, 125 used very potent topical steroids (clobetasole). 86 patients got steroid combination with antibiotics. Only 25 patients got systemic steroidal therapy

(omnacortil) (Fig7), and efficacies of these steroids are presented in Fig 8, which shows that most of the prescriptions come under high potency steroidal agent. Among the topical steroidal agent 91% of the patient got high potency steroidal agent (clobetasole). Analysis of antifungal group (Fig 9) revealed that out of 173 patients requiring an antifungal, 43 patients received one topical and one oral antifungal. While 14 patients got topical antifungal combination with steroids, 20 patients received one topical and one oral and 90 patients got only topical antifungal agent, 29 patients received only systemic antifungal agents. Fluconazole was most commonly prescribed because its monthly dose provides cost effective treatment and decrease propensity for adverse effect. From Fig 11, it can be seen that antibiotics were prescribed in 287 prescriptions out of the total 500 patients, among that most prescribed drug was Roxithromycin. Only 15 patients received antibiotic combination with steroids. Most of the antibiotic prescriptions were used in case of dermatitis, Eczema, pyoderma condition. Analysis showed that about 58.8 % (294 out of 500) patients received at least one antihistamine, the two antihistamines were prescribed together on 4 occasions (Fig 10). Present study shows that vitamins are usually recommended in the case of pigmentation disorder like vitiligo, melasma etc and Vit.A containing topical agent were used in case of acne & ichthyosis. Among astringent category, calamine was the most commonly prescribed products. The miscellaneous category included NSAIDS, proton pump inhibitors, analgesic, Antiviral and antiparasitic agent agents (Fig 12).study reveals that Fungal infection were the largest group of disorder among which T.versicolor was most observed infection agent. High incidences of Dermatitis and hypersensitivity disorder were found in our study, among that seborrheic dermatitis was most frequently found. About 9.6% of patients reported with pigmentation disorder. Incidence of viral infection (0.8%), parasitic skin infection (1.6%) was relatively low. Among the non infective skin disorder, Eczema emerged as the single largest disorder (10.0%) (Fig 14).

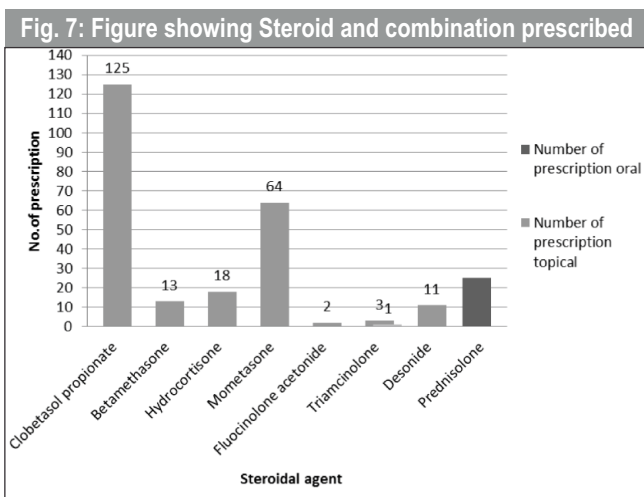
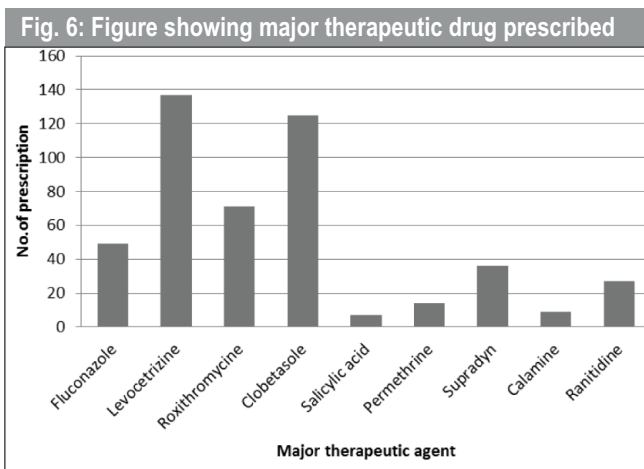
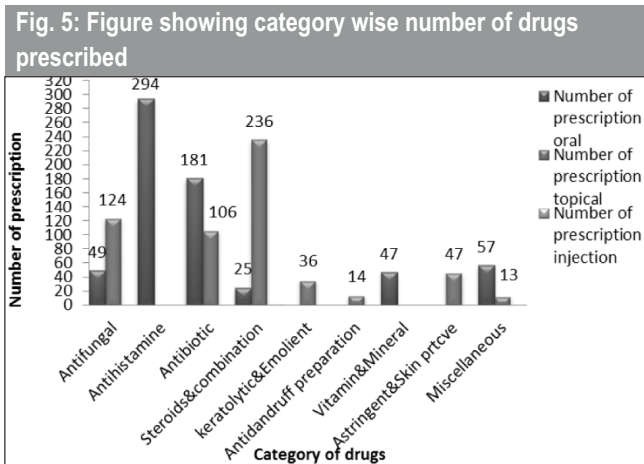
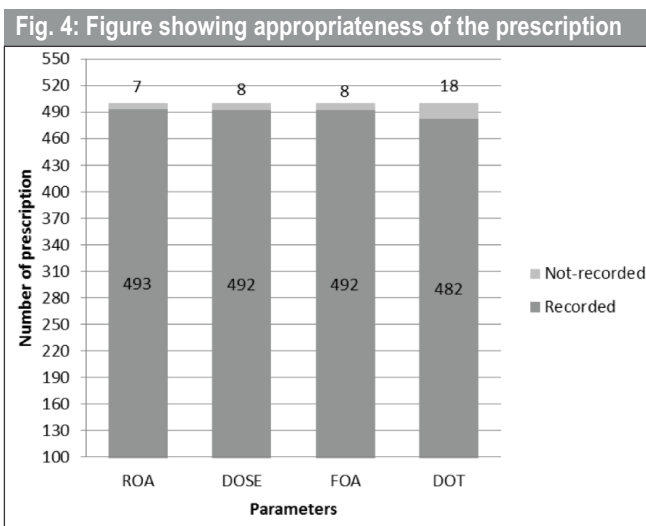
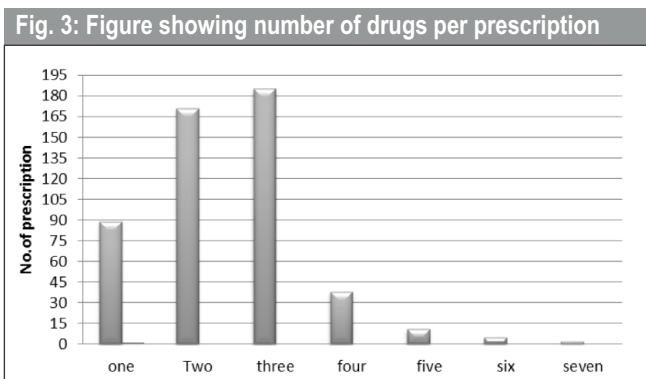
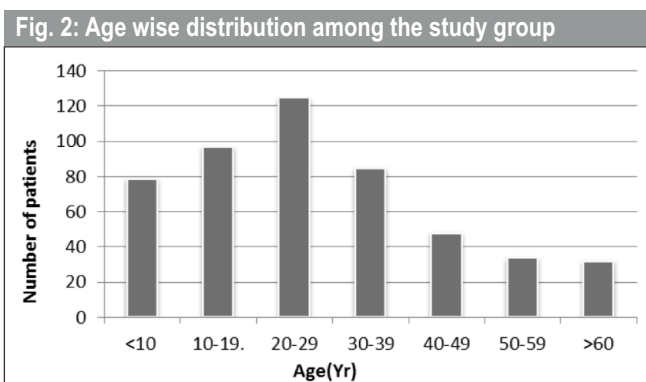
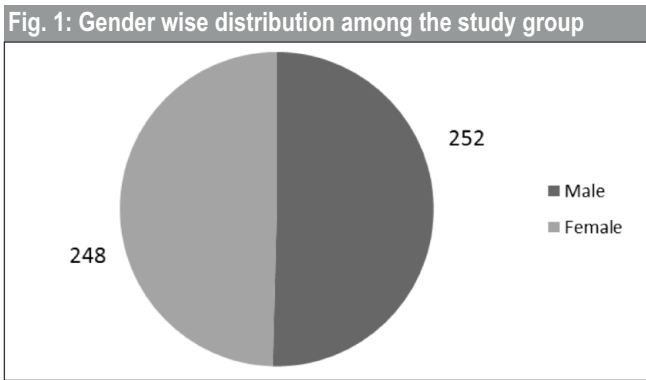
WHO/INRUD rational drug-use indicators

WHO prescribing indicators are given in Fig 13, result reveals that out of the total 1230 individual drugs prescribed, 13 (1%) were prescribed by generic names and about 18.78% of the drugs were prescribed from the WHO essential drug list. A total of 1230 individual drugs were prescribed in 500 encounters. Overall, the average number of drugs per encounter was 2.46. Analyzing for antibiotic prescription showed that 287 individual antibiotics were prescribed for 500 patients. Some patients had received more than one antibiotic, as a systemic preparation in combination with either a topical application or another systemic preparation.

None of the patients received triple antibiotics. Overall, the proportions of encounters with at least one antibiotic prescribed shows 23.3%. Present study shows that total of 9.75 % drugs prescribed as fixed drug combination, among that only 0.2% accounting as essential one.

DISCUSSION

In the present study, even though the sample size was not very large, it gave a cross-section of patients and the diseases for which they reported for treatment. The disease profile described in this study corresponds well with the health statistics from the Indian dermatology department (fungi infection, dermatitis) accounting for most morbidity reported from the dermatology outpatient department. The number of male patients was more than females and the ratio was more than that expected from the sex ratio of other studies¹¹ It is important to choose the right medicine(s) for a patient and in an appropriate manner in order to achieve the best results of medicine therapy. In our study it is heartening to note that more than 90 percentage of medicines, recorded route of administration, dose, frequency of administration and duration of treatment. This positive observation would be a sign of good prescribing patterns in this dermatology outpatient department. The irrational use of drugs is a common occurrence throughout the world. Average number of drugs per prescription is an important index of prescription audit. In our study the mean number of drugs per prescription was found to be 2.46, it was lower than what had been previously reported in other studies in Western Nepal¹² and other parts of India¹³ It is preferable to keep the number of drugs per prescription as low as possible since higher figures lead to increase risk of drug interaction, adverse effect and increased cost to the patient. Our study reports that only 1% of drugs were prescribed by generic name. Our value is less than that reported in other studies^{14,15}. The decreasing percentage of drugs prescribed by generic names in our hospital is a matter of concern and the reasons for these should be investigated. Prescribing by brand name may be an evidence of dangerous promotional strategy by pharma companies. Our study revealed that the percentage of drugs prescribed from WHO essential drug list was only 20.16%, which is lower compare to that of the study conducted in North India (75-95%)¹⁰. The possible reason for this lower value could be the prescribers lacking the understanding and importance of essential drug concept. The low rate of prescribing from WHO essential drug list may be contributed by excessive use of antihistamines (cetirizine), antibiotics (Roxithromycin, fusidic acid) and several topical steroidal preparation which are not included in WHO essential drug list. In the present study total of 9.75% fixed drug combination were prescribed, among that only 0.2% could be considered as essential which is much lower than what have been previously reported (39%)



in other studies in India¹⁵. The lower percentage of rational FDC may be due to the most of the prescription were combination of antifungal, antibiotic and corticosteroids which are not included in WHO fixed drug combination list. In this study Antihistamine, Antibiotic and Steroid & combination were the most prescribed drugs. Antihistamines were the most commonly prescribed systemic

agents in dermatology, which is almost similar to previous studies in Dermatology OPD of Nepal¹², because most of the dermatological problem is associated with the itching (associated with fungal, scabies, eczema). The percentage of prescription with an antibiotics prescribed was 23.3%. Roxithromycin was the most frequently prescribed antibiotics. Fluconazole was the drug most commonly prescribed among antifungal agents, because of its once in a month dose schedule results in cost effective treatment and a lower propensity of adverse effect. Present study reveals that corticosteroids were the mainstay treatment in dermatology department, which indicates inappropriate utilization or over-utilization. Majority of the patients got potent corticosteroids (clobetasole 48%). The quantity of the prescription and duration of use not mentioned in 18 prescriptions, this may result in under utilization of the preparation and subsequent sub-therapeutic outcome. There is also the possibility of over utilization of the topical corticosteroids by the patient thus subsequent risk of hypothalamic-pituitary adrenal axis suppression. Hence, they have to be tapered or reduced to minimal dose. In our study, vitamins are mainly prescribed for the patients having pigmentation disorder, but other studies conducted in dermatology department had shown that vitamins are usually recommended along with oral antibiotics to prevent vitamin deficiency associated with death of normal microflora¹². Topical vitamin A derivative also prescribed in the case of acne, and ichthyosis. Permethion was prescribed in most of the cases with patient having scabies, though benzoyl benzoate is a cheaper alternative for treating scabies. Permethrin is found to be suitable for scabies, owing to its single application as compared with benzyl benzoate. Most of the Dermatological condition in the OPD were cutaneous infection (38.6%) followed by hypersensitivity and inflammatory disorder (10.2%), Acne & related (9.6%), pigmentation disorder (9.6%). Thus, results of the disease pattern showed that is similar to that in North Eastern part of India.¹⁶ The high incidence of infectious disease in developing countries may be related to inadequate medical care, poor sanitation and nutrition. In this study Eczema emerged as the single largest disorder; similar findings are also reported from other studies^{16,17} Fungi infections were the largest group of disorder, the warm humid climate of the Malabar region may account for the high incidence fungal infection. Incidence of parasitic infection and pyoderma in our study may be due to low socio-economic status and nutritional deficiency of such patients. The incidence of viral infection was relatively low (0.8%) in our study which is comparable to similar studies done in Northern Indian (1.6%)¹⁸ and Trivandrum 3.10%.⁴³ Only 4 patients presented with viral exanthemas in our study because such patients

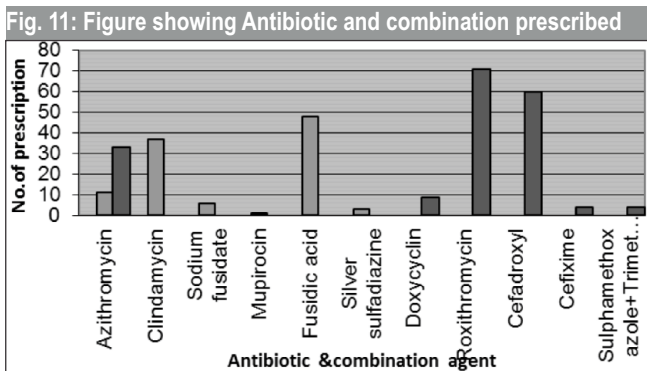
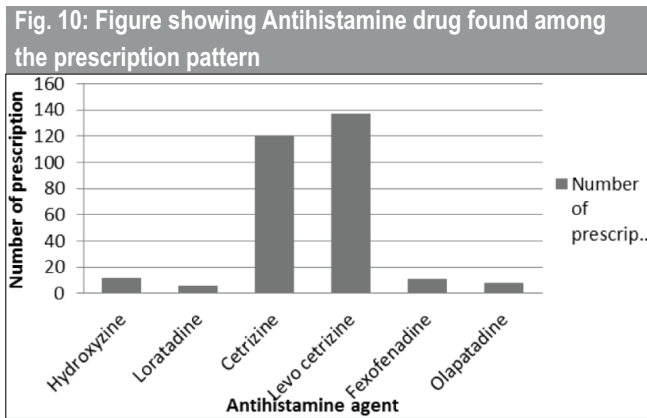
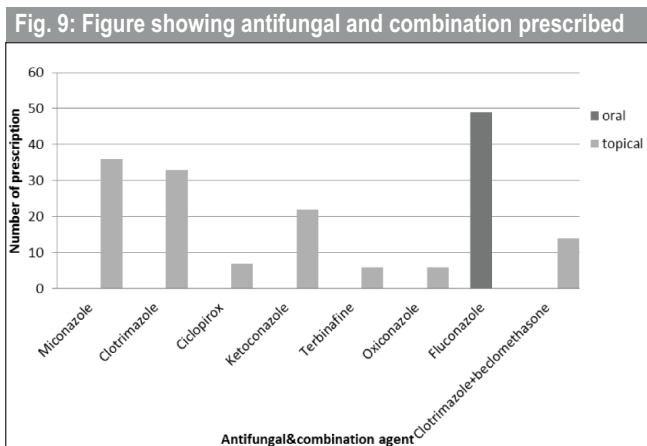
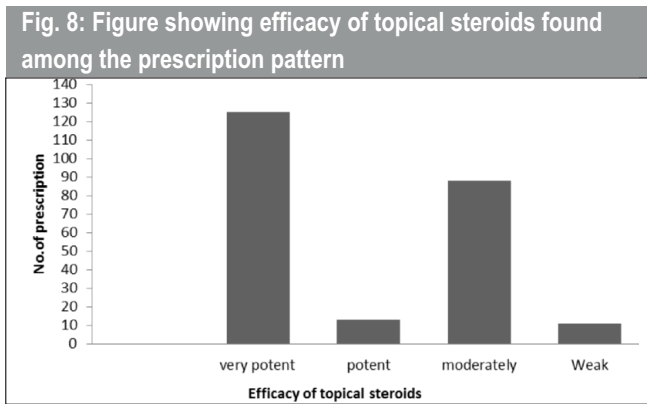


Fig. 12: Figure showing pattern of miscellaneous drug prescribed

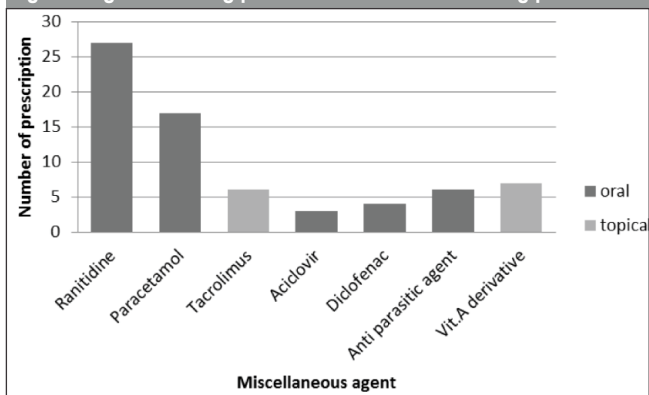


Fig. 13: Figure showing WHO prescribing indicators

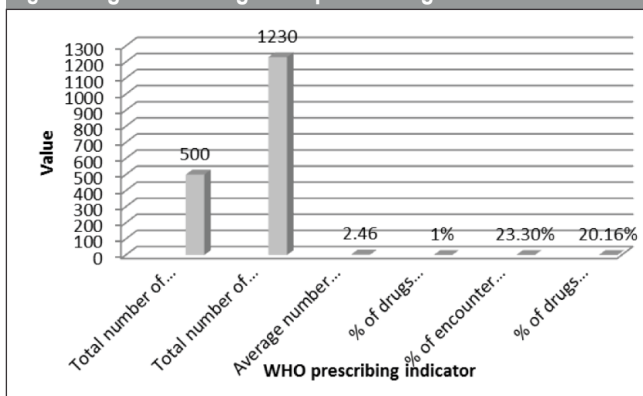
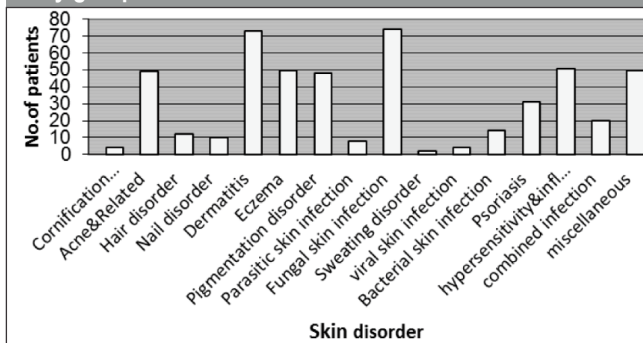


Fig. 14: Figure showing disease distribution among the study group



mainly consult the physician. None of the patients presented with Hansen's disease in this study is due to the fact that such patients mainly attend leprosy and TB centers where the medicines (MDT) are given free of cost. Our study had few limitations. The pharmacotherapeutic aspect of the prescription in relation to health problem or diagnosis of the patients was not assessed. The study was carried out over a six-month period and seasonal variations in disease patterns may not have been taken in to account. The study was carried out during autumn-winter season. A similar study over a longer period of time which can nullify the effect of seasonal variations should be explored further in future studies.

CONCLUSION

This study is mainly focused on the dermatological disease pattern, prescribing pattern of drugs in Dermatology outpatient department. The study suggests that there is immense scope of improvement in prescribing in this department. This study reveals that generic prescription is very low and suggests that effort must be made to encourage prescribers for generic prescribing which may have a multitude of benefits including cost effectiveness. The percentage of encounters with an injection and systemic steroids was low. This is a welcome sign and has to be encouraged. Having a steroid and antibiotic prescribing policy will go a long way to minimizing inappropriate prescriptions. Also, standard treatment guidelines for the treatment of common disease should be formulated.

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