



**A COST ANALYSIS STUDY ON DRUG PRESCRIBING PATTERN OF  
ANTIHISTAMINES IN DERMATOLOGICAL CONDITIONS AT TERTIARY CARE  
HOSPITAL.**

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**ABSTRACT**

This study was carried out to bring out cost analysis and prescribing pattern of antihistamines in dermatology department of tertiary care teaching hospital in Faridkot, India. Prescriptions of total 176 Patients were collected from outpatient department over a period of 2 months (January to march 2016) while 96 of them followed up time to time. The most commonly prescribed antihistamines are cetirizine, levocetirizine, hydroxyzine, doxepin, ebastine, cefadroxil, chloroquine, cyproheptadine, promethazine chlorpheniramine, fexofenadine, loratadine, topiramate, doxycycline. Antihistamines are one of the commonly used drugs for treating dermatological disorders. Periodic evaluation of prescribing patterns can increase the therapeutic efficacy, decrease adverse effects, and provide feedback to prescribers. The most frequent diseases seen in department are urticaria, acne, tinea, seborrhic and acute dermatitis, eczema and many other diseases that are less frequent like PMLE, xerosis. The pattern of drugs seen in different age groups from 0-15, 16-30, 31-45, 46-60, >60.

**KEY WORDS:** antihistamines, dermatology, cost analysis, prescribing pattern, rationality.

**INTRODUCTION**

Drugs play an important role in protecting, maintaining and restoring health. 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.<sup>[1]</sup> Prescription writing is a science and an art, as it conveys the message from the prescriber to the patient.<sup>[2]</sup> Over the last decade, important advances occurred in our knowledge about the mechanisms through which H1 antihistamines produce their desirable effects and adverse reactions.<sup>[3]</sup> An essential tool for such work is an objective method to measure drug use in health facilities that will describe drug use pattern and prescribing behavior. Dermatology is one of the few disciplines in which we are able to apply therapy directly to the target site. The concentration, the vehicle and the frequency of application can all be altered according to the response, which can easily be monitored. Among the drugs used in dermatology are vitamins/minerals, antibiotics, antiseptics, antifungal, antiviral, topical corticosteroids, emollients, keratolytics, antiparasitics and antihistamines.<sup>[4]</sup> Antihistamines are now more than a century since the discovery of histamine,<sup>[5]</sup> more than 70 years since the pioneering studies of Anne Marie Staub and Daniel Bovet led to the discovery of the first antihistamine<sup>[6]</sup> and more than 60 years since the introduction into the clinic of antergan in 1942,<sup>[7]</sup>

followed by diphenhydramine in 1945.<sup>[8]</sup> and chlorpheniramine, brompheniramine, and promethazine later the same decade.<sup>[9]</sup> Histamine plays important roles in inflammation and nervous irritability in allergic disorders<sup>[10]</sup>, antihistamines are often used to treat the symptoms of allergies such as seasonal and perennial allergic rhinitis and urticaria. Dermatological conditions account for up to 2% of consultations in general practice worldwide. Dermatological problem in India manifests as primary and secondary cutaneous complaints. The first generation antihistamines have been associated with side effects, particularly sedation. Second generation antihistamines are therefore favoured over the first generation drugs, not because of greatly improved efficacy but because they have fewer side effects, especially sedation.<sup>[11]</sup> Most of the patients were having Acne problems. Antihistamines were mostly prescribed in allergic conditions and rashes. Majority of drugs were prescribed in brand names. Periodic evaluation of prescribing pattern is necessary to improve prescribing standards.<sup>[12]</sup> 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.<sup>[13]</sup> The use of any medication in this age group must adhere to the strictest

safety criteria, and must offer the maximum guarantees of efficacy. For this reason, detailed knowledge of the best scientific evidence available in relation to these aspects is essential for warranting drug use.<sup>[14]</sup> In India the most prevalent dermatological conditions include but not limited to dermatitis, urticaria, fungal skin infection, acne, alopecia and conditions such as psoriasis, skin cancer and adverse drug reaction on the skin are less prevalent.<sup>[15]</sup>

## MATERIAL AND METHODS

A prospective study was carried out in department of dermatology of GGS Medical College & Hospital, Faridkot, Punjab, India. A data collection form was prepared which includes patient as well as medication related information. 176 prescriptions were collected during January 2016 to March 2011 and 96 of them followed their prescriptions. All relevant and necessary information for the study was collected from the outpatient department cards, treatment charts and verbal communication with the patients. Patient related parameters includes age, sex and drug related data such as name of the drug, dosage form, dosing frequency, price, and diagnosis data also noted.

## RESULT AND DISCUSSION

Antihistamines are commonly used drugs in dermatological conditions and their rational use can minimize the side effects. The result of this study can indicate that the antihistamines are commonly prescribed for patients attending to the dermatology department. We have collected 96 patients from OPD

department from them 96 have followed their prescriptions time to time. Table 1. involves the antihistamines that are used for the study and their prices according to different brand names. According to these, from first generation of antihistamines brand atarax, cyproheptadine and chlorpheniramine and from second generation brand cetrex is most cost effective. In Table 2, the categorization of drugs is according to the sex wise distribution. Cetrizine is given to 21 males and 11 females as well as hydroxyzine are given to 19 males and 14 females. While other drugs like cyproheptadine and cortiog is only given to men and cefadroxil, chloroquine and promethazine are only given to women. While loratadine, clemastine and doxepin having no much differences. In Table 3, distribution of drugs according to different age groups is included. In this cetrizine and hydroxyzine prescribing to each age group of patients. Ebastine and fexofenadine is commonly given to the age group less than 15 years while doxepin and cyproheptadine is commonly prescribing to age groups more than 45 years. As well as others are commonly prescribed to common age groups. As it is, in Table 4, drugs are prescribed according to different disease patterns like cetrixine is commonly given to all diseased patient that came to dermatology except psoriasis, as like that besides acne and psoriasis, hydroxyzine is also prescribed to much of the patients. But cefadroxil, chloroquine, cortiog, chlorpheniramine, clemastine are not commonly prescribed as it is cyproheptadine, fexofenadine topiramate and loratadine is only written to dermatitis effected patients.

**Table 1: Classification of antihistamines that are involved to treat dermatological conditions.**

Drug	Dose & route	Preparation	Price
<b>First generation:</b>			
<b>Highly sedative</b>			
Promethazine	25-50 mg oral/i.m.	Tab. Phenargan	13.30*10 tabs
Hydroxyzine	25-50 mg oral/i.m.	Tab. Atarax,	116* 10 tabs
	100 ml	Syp. Atarax,	39.36* 1Pck.
Hydroxychloroquine	10 mg 100 ml	Syp. Hicope	43.94* 1Pck
	200 mg oral	Tab. HCQ	68.50 * 10 tabs
<b>Moderately sedative</b>			
Cyproheptadine	4 mg oral	Tab. Ciplactin	28 * 15 tabs
<b>Mild sedative</b>			
Chlorpheniramine	4 mg oral	Tab. CPM	1.8 * 10 tabs
<b>Second generation</b>			
Fexofenadine	50 mg oral	Tab. Fexolar	148.58 * 10 tabs
Desloratadine	5 mg oral	Tab. Lorday	35* 10 tabs
Loratadine	10 mg oral	Tab. Lorinol	71 * 10 tabs
	10 mg oral	Tab. Lesnar	0.33*1 tabs
	10 mg oral	Tab. Aslar	
Cetrixine	5mg oral	Tab. Cetrex	48.50*10 tabs
Ebastine	10 mg oral	Tab. Ebast	70 *10 tabs
		Tab. Listar	
Doxepin	75 mg oral	Cap. Spectra	99.50 * 10 tabs
Doxycyclin		Tab. Tinadox-L	
Cefadroxil	250 mg oral	Tab. Bicef-cv	116 * 10 tabs
Clemastine	30 mg oral	Tab. Omin-r	34.20 * 10 tabs

**Table 2: Sex wise distribution**

Drug name	Males	Females	Total
Cetirizine	21	11	32
Hydroxyzine	19	14	33
Doxepin	4	3	7
Ebastine	5	2	7
Cefadroxil	0	1	1
Chloroquine	0	1	1
Cortilog	1	0	1
Cyproheptadine	2	0	2
Promethazine	0	1	0
Chlorpheniramine	1	0	1
Clemastine	1	2	3
Fexofenadine	2	1	3
Topiramate	1	0	1
Doxycycline	0	1	1
Loratadine	2	1	3

**Table 3: Drug distribution according to age groups**

Drugs/Age	0-15	16-30	31-45	46-60	>60
Cetirizine	2	11	13	5	1
Hydroxyzine	7	3	7	8	3
Doxepin	0	3	0	1	3
Ebastine	3	2	2	0	0
Cefadroxil	1	0	0	0	0
Chloroquine	0	0	1	0	0
Cortilog	0	1	0	0	0
Cyproheptadine	0	0	0	1	1
Promethazine	0	0	1	0	0
chlorpheniramine	0	1	0	0	0
Clemastine	1	1	1	0	0
Fexofenadine	2	0	1	0	0
Topiramate	0	1	0	0	0
Doxycycline	0	1	0	0	0
Loratadine	0	3	0	0	0

**Table 4: Drug distribution according to disease**

Drugs/disease	Acne	Urticaria	Dermatitis	Tinea	Psoriasis	Scabies	Others
Cetirizine	3	4	5	9	0	4	7
Hydroxyzine	0	1	13	5	0	2	5
Doxepin	0	2	1	0	0	0	4
Ebastine	2	0	2	1	0	0	2
Cefadroxil	0	0	0	0	0	0	1
Chloroquine	0	0	0	0	0	0	1
Cortilog	0	0	0	0	0	0	1
Cyproheptadine	0	0	2	0	0	0	0
Promethazine	0	0	0	1	0	0	0
chlorpheniramine	0	0	0	0	0	0	1
Clemastine	0	0	2	0	0	0	1
Fexofenadine	1	0	1	0	1	0	0
Topiramate	0	0	1	0	0	0	0
Doxycycline	1	0	0	0	0	0	0
Loratadine	0	0	1	0	0	0	1

Others included diseases like PMLE, Hansen's disease, LPH, PPK, Prurigo nodularis, Discoid eczema, Disseminate DLE, Molluscum. Cetirizine a second generation drug is commonly used in all types of

dermatological diseases as well as hydroxyzine first generation drug is used in most dermatological conditions. From first generation antihistamines brand atarax is widely prescribed to patients and it is less costly

from other first generation brand and drugs. On the other side, some other brands like chlorpheniramine and cyproheptadines are cheap but that are not usually prescribed to patients. Like that second generation brand named cetrex is more economic as compared to other brands like doxycycline, topiramate, clemastine, cotilog, chlorohexine etc. As follow up by the patients there are no harmful effects after receiving the therapy.

### CONCLUSION

As discussed earlier, brand atarex, chlorpheniramine, cyproheptadiene belonging to first generation and brand cetrex, lesnar, lorday and spectra belonging to second generation is more economic but only atarex and cetrex commonly used to patients that are commonly suffer from diseases like Tinea, Acne, Dermatitis, Scabies, Pruritis, Urticaria and many other diseases. As follow up by all the included patient there is no complaints regarding adverse drug reactions. So we can say that drug hydroxyzine from first generation and drug cetrixine from second generation are most effective as well as having cost effective drugs. The present study reveals that antihistamines are very potent and potent groups were commonly prescribed and prescribing information was adequate in majority of cases. This report is aimed for the benefit of the patients, providing feed back to the prescribers and desirable in rationalizing prescribing practices.

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