

Cost Analysis of Various Brands of Antibiotics and Corticosteroids in Dermatology Department

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ABSTRACT

Background: Skin diseases are referred to the disorders that occur mainly on the superficial layers of the skin. Antibiotics and corticosteroids are commonly used drug classes in the management of skin disorders. Since, the variation in price of antibiotics and corticosteroids used in dermatological departments vary widely, this study was performed to give an insight on the difference of the cost of various brands of antibiotics and corticosteroids available in India. **Methods:** The 6-month prospective study conducted from September 2018 to March 2019 assessed the cost variability between different brands of antibiotics and corticosteroids commonly prescribed. The cost of various brands of drugs was collected from the Current Index of Medical Specialties (CIMS) and medguideindia.com. **Results:** It was seen that tablet prednisolone showed the maximum percentage price variation (4408.67%) followed by tablet azithromycin that varied by 1607.23%. **Conclusion:** As the drugs prescribed by brand names are higher than the drugs prescribed in their generic names, the cost effectiveness

will not be achieved. This suggests that prescribing drugs in generic name will also have an option for the dispensing pharmacist to provide the suitable drug to the patient.

Key words: Antibiotics, Corticosteroids, Price variation, Dermatology, Cost analysis, Skin diseases.

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INTRODUCTION

Skin diseases are referred to the disorders that occur generally on the superficial layer of the skin.¹ Antibiotics and corticosteroids are the mainstay in the management of skin disorders and are available in various formulations. Antibiotic is defined as “a chemical substance produced by a micro-organism that kills or inhibits the growth of another micro-organism”. Antibiotics are selected according to the target of the organism, location of the application and based on the properties which are unique to other class of antibiotics.² Corticosteroids due to its strong immunosuppressive and anti-inflammatory actions play an important role in dermatological conditions.³ The main goal of therapy is to treat with least possible drugs with safe and effectiveness, so as to acquire finest achievable outcome in a short duration at low price.⁴

Health care system across the globe struggle with the increasing drug prices, although a part of it is legitimate and unavoidable. Some explainable factors could be the availability of the novel drug, or the changes in demographics of the patient population.⁵ Several studies have mentioned that drug prices influence therapeutic compliances. In health care system, the cost of prescription can have an impact on Users, Suppliers and most significantly Payers.⁶

Cost analysis on various brands of antibiotics and corticosteroids available in the market provides information on the variation of costs between the brands. Along with the benefits of providing the physician with a broader and cost effective range of medications, cost analysis studies can also in indirect ways, increase ones adherence to his medications resulting in better clinical outcome. Hence, the study was to carry out the cost analysis on various brands of antibiotics and corticosteroids available in the market.

MATERIALS AND METHODS

A prospective observational study has been carried out in Dermatology out-patient department of a multi-specialty teaching hospital at Mangaluru for a span of six months. The price of particular drug available in different strength and dosage form, which are manufactured under different brands, were compared. Drugs that were available under a single brand were excluded and the percentage price variations of similar drugs were calculated using the formula:

$$\text{Percentage cost variation} = \frac{\text{Maximum cost} - \text{Minimum cost}}{\text{Minimum cost}} \times 100$$

The cost of various brands of drugs was collected from the Current Index of Medical Specialties (CIMS) and medguideindia.com. Institutional Ethical Committee ethically approved the present study.

RESULTS

In this price variation study, 36 drugs, which are available in 212 different formulation, were analysed.

Price variation in Corticosteroids (Single drug therapy and Combination therapy)

Table 1 depicts that among corticosteroids that are prescribed as single drug therapy, cost variation of Prednisolone (5mg) shows maximum variation in price of 4408.67% followed by Mometasone 0.1% of 501.42%, whereas Methylprednisolone 8mg showed minimum Percentage price variation of 3.87%. Among the combination therapy, Beclomethasone + Clotrimazole (20gm) shows maximum price variation of 918.18%.

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Table 1: Price variation in Corticosteroids (Single drug therapy and Combination therapy).

Drugs	Dose	Manufacturing Companies	Maximum cost (Rupees)	Minimum cost (Rupees)	Percentage price variation (%)	
Fluticasone Propionate Cream	0.05%w/w	10gm	5	133.4	85.00	56.94
Clobetasol cream	0.05%w/w	30gm	6	143.00	65.00	120
T. Betamethasone	20 tablets	1mg	2	16.05	3.64	340.93
T. Betamethasone	10 tablets	1mg	3	6.8	4.98	36.54
		30ml	2	222	199	11.55
Halobetasol lotion	50ml	1	248	-	-	
	15ml	1	90	-	-	
Mometasone 0.1%	15gm	5	210.5	35.00	501.42	
Triamcinolone	40mg	6	116.5	49.0	137.75	
	16mg	5	93.73	90.22	3.89	
T. Methylprednisolone	8mg	5	53.63	51.63	3.87	
	4mg	5	42.5	40.0	6.25	
Desonide Cream	10mg	4	168.5	67.0	151.49	
	15mg	2	120.0	110.0	9.090	
Desonide lotion	30ml	2	184.4	128.0	44.06	
T. Prednisolone	5mg	7	156.0	3.46	4408.67	
Hydrocortisone	100mg	5	41.05	20.81	97.26	
Clobetasol + Salicylic acid cream	10gm	1	31.76	-	-	
	20gm	3	86.00	60.00	43.3	
Clobetasol + Salicylic acid ointment	20gm	4	159.0	126.0	26.19	
	30gm	3	225.0	95.0	136.84	
	20ml	1	140.00	-	-	
Halobetasol + Salicylic acid lotion	30ml	1	218.00	-	-	
	50ml	1	301.28	-	-	
Clobetasone+ Miconazole	15mg	4	83.7	32.00	161.56	
	10mg	1	23.5	-	-	
	15gm	3	69.7	35.00	99.14	
Beclomethasone + Clotrimazole	20gm	2	112.0	110.00	918.18	
	30gm	1	127.00	-	-	
Mometasone + Clotrimazole	10gm	2	178.0	116.5	52.78	

Price variation in Antibiotics (Single drug therapy and Combination therapy):

Table 2 shows that in cost variation study of Antibiotics used as single drug therapy, Azithromycin (250mg) shows maximum price variation of 1607.23% followed by Minocycline (45mg) of 473.68% and least price variation was seen in Fusidic acid (5gm) of 2.45%, whereas in combination therapy, maximum price variation was seen in Clindamycin + Tretinoin (15gm) 380.26% and least price variation was seen in combination of Betamethasone + Fusidic acid (15gm) 5.12%.

DISCUSSION

Antibiotics and corticosteroids are one of the commonly used drug classes in the management of the skin disorders. These drugs are available in various formulations. Among various drugs being prescribed, very few drugs were prescribed in their generic name. This study discloses that the cost of most of the brands of antibiotics and corticosteroids have

percentage price variation above 100%, which is not satisfactory state for most of the patients. Out of 36 drugs which are commonly prescribed showed extensive percentage price variation leading to monetary hardship on the consumer.⁶ Unlike developed countries, in India the medical costs for most of the patients are not covered by insurance scheme. Hence, the medical bills will be paid by them alone.⁷

In this situation, it is advisable that the enormous difference of price between various brands should be managed. In another way, if the data regarding the prices of drug were easily accessible, then the physician will have an option to choose the required brand to reduce the patient's drug expense. Hence, to some extent, it will reduce the commercial hardships on the patients.⁸

A huge number of branded formulations are available in Indian market for almost all the drug molecules, with simultaneous cost differences between the different brands of same formulations. This by itself could create some sort of confusion among the innocent customers leading to be misguided by biased dealers.⁹ This variation of pricing within the

Table 2: Price variation in Antibiotics (Single drug therapy and Combination therapy).

Drugs	Dose	Manufacturing companies	Maximum cost (Rupees)	Minimum cost (Rupees)	Percentage price variation (%)
Cap. Cefalexin	500mg	5	162.00	52.5	208.57
Cefixime	100mg	6	95.0	54.05	75.76
Fusidic acid cream 2%w/w	5gm	3	47.95	46.8	2.45
	10gm	7	165.00	64.00	157.81
	15gm	1	143.75	-	-
T. Doxycycline	100mg	6	59.92	15.00	299.46
Minocycline	45mg	5	1090.00	190.00	473.68
Cefadroxil	500mg	6	42.45	36.52	16.23
Nadoxin cream	10gm	6	111.55	39.7	180.98
Erythromycin	60ml	2	41.3	24.67	67.40
Azithromycin	250mg	7	110.97	6.5	1607.23
Benzoyl peroxide	20mg	4	78.5	49.37	59.00
	30mg	2	118.1	110.02	7.34
Benzoyl peroxide + Clindamycin	15gm	4	339.0	198.0	71.21
	25gm	1	240.0	-	-
Cap. Doxycycline + Lactobacillus	10cap	6	84.1	69.5	21.007
	8cap	1	65.5	-	-
Amoxicillin+ Clavulanic acid 10tabs	625mg	5	182.3	144.75	25.94
	10gm	1	60.0	-	-
Clindamycin + Tretinoin	15gm	3	60.8	292.26	380.26
	20gm	1	110.0	-	-
Mometasone 0.1% + Fusidic acid 2%	10gm	5	245.00	165.00	48.48
	5gm	2	132.95	59.95	121.76
Hydrocortisone + Fusidic acid	15gm	1	170	-	-
	10gm	2	77.00	42.9	79.48
Betamethasone + Fusidic acid	15gm	2	58.45	55.6	5.12
	10gm	3	162.0	107.25	51.04
Clobetasol + Fusidic acid	15gm	2	180.0	160.0	12.5
	20gm	1	276.0	-	-

brands can be condensed by prescribing the drugs according to their generic names.¹⁰ Cost analysis was done to study the variation in the prices between different brands of the same generic corticosteroid medication (monotherapy) and it was found that highest percentage variation was seen between brands of tablet Prednisolone (4408.67%). In case of single drug therapy of antibiotics it was found that Azithromycin (250mg) showed a maximum price variation of 1607.23%.

Among the drugs prescribed in combination, it was observed that Beclomethasone + Clotrimazole showed maximum price variation (918.18%) followed by Clindamycin + Tretinoin (380.26%) and the least price variation was seen in the combination of Betamethasone + Fusidic acid (5.12%). Thus, this study highlights the huge price variation among the single drug therapy of antibiotics and corticosteroids as well as the combination of antibiotics and corticosteroids. Very less similar studies are conducted in Indian scenario, which compares the prices of different brands of drugs.

CONCLUSION

Cost analysis on various brands of Corticosteroids and Antibiotics available in the market reports that, there is enormous difference in cost

variation among the drugs. It is suggested that, if there is a ready reckoner which contains the price details of different drugs which are available in the market, the prescribers will have an option to choose the required brand for their patients, to reduce the overall treatment cost.

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CONFLICT OF INTEREST

The authors declare none.

ABBREVIATIONS

CIMS: Current Index of Medical Specialties.

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