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Drug utilization of topical and systemic steroids in treating various skin diseases in the dermatology department of a teaching hospital, Bangalore

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Abstract
Introduction: The World Health Organization (WHO) in 1997 defined drug utilization as the distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences. Introduced in late 1950s, corticosteroids have revolutionized the practice of dermatology showing dramatic improvements in dermatological diseases and till now remains the largest and the mainstay in the management of various dermatological conditions such as eczema, psoriasis, vitiligo, lichen planus, atopic dermatitis, contact dermatitis, alopecia areata, discoid lupus erythematosus, and drug rash. Corticosteroids are produced by the cortex of the adrenal glands. Glucocorticoids and mineral corticosteroids are the two primary types. Topical corticosteroids have made a dramatic contribution to dermatology since the introduction of “compound F” or hydrocortisone in 1952 and have become the mainstay of dermatologic treatment of a wide range of inflammatory and non-infectious conditions. Topical corticosteroids are an essential tool for treating inflammatory skin conditions such as psoriasis and atopic dermatitis. The strength of topical corticosteroids is determined by the possibility of side effects such as atrophy, striae, rosacea, telangiectasias, purpura. Systemic steroids are given orally or intravenously. "Systemic" refers to the fact that they affect the complete body rather than just the skin, the side effects are Insomnia, change in mood or behavior, increase appetite.
Objectives: To evaluate the utilization of topical and systemic steroids in treating various skin disease.
Methodology: This was an observational study. The study was conducted in ESIC MC-PGIMSR, Rajajinagar, Bengaluru, India. A total 272 patients were performed in this study over a period of 3 months in outpatient dermatology department. The subject’s demographic details and responses were collected with the help of self-design data collection form. The collected data were entered in Microsoft Excel and appropriate statistical analysis was performed.
Results: A total of 272 patients were enrolled in the study based on the inclusion and exclusion criteria. Out of the 272 subjects who participated in the study, most of them belonged to the age group of 41-50 years 34.56% (n=94), and the number of males 48.90% (n=133) were less than the females 51.10% (n=139). Most of the subjects were having dermatitis about 19.49% (n=53). Most of the prescription preferred topically 90% and most of the subjects 240 prescribed single corticosteroids (88.24%) and There were 53 individuals and 62 steroidal medications present (20.39%), with more corticosteroids being used to treat dermatitis. Desonide 110 is the medicine that is used the most (36.18%), while lotion 116 is the most commonly prescribed dose type (38.16%).
Conclusion: The study was conducted in a teaching hospital in urban premises of Bengaluru comprising of patients who met the inclusion and exclusion criteria. The study conclude that the majority of the patients enrolled in the study were females. The distribution of skin diseases among study subject receiving corticosteroids was seen highest number of patients is dermatitis, out of 272 subjects 53 is dermatitis patients. The most of corticosteroids prescribed topically and majority of subjects prescribed single corticosteroids. The most common drugs were prescribed was desonide and then clobetasol propionate and most commonly lotion and ointments are preferred. Irrational use / abuse of topical or systemic steroids may lead to severe ADRs and quality of life of patient. Hence, establishing standard guidelines for treatment of various skin disease where steroids are required.

Keywords: Corticosteroids, dermatology, drug utilization, out-patient

Introduction
The World Health Organization (WHO) in 1997 defined drug utilization as the distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences [1].

Dermatology is the science of the skin and its appendages; it is directly in contact with the environment and can alter the skin physiology either intrinsic (Genetic and metabolic process) or extrinsic way (Chemicals and pathogens) [2]. Skin diseases are common in clinical practice accounting for up to two percent of outpatient department consultations in general practice worldwide [3]. The most prevalent dermatological conditions include scabies, dermatitis, urticaria, pyoderma, fungal skin infection, acne, alopecia and less common are eczematous disorder such as psoriasis, skin cancer and cutaneous adverse drug reaction [4].

Introduced in late 1950s, corticosteroids have revolutionized the practice of dermatology showing dramatic improvements in dermatological diseases and till now remains the largest and the mainstay in the management of various dermatological conditions such as eczema, psoriasis, vitiligo, lichen planus, atopic dermatitis, contact dermatitis, alopecia areata, discoid lupus erythematosus, and drug rash. Since this group of drugs readily and rampantly available in the market, it is frequently used for their palliative effect leading to its misuse in medicine practice [5].

Corticosteroids being widely used powerful anti-inflammatory & immunosuppressive agents and have become cornerstone of therapy in acute and chronic inflammatory diseases. Corticosteroids though they are life-saving drugs, produce adverse reactions which may be mild or life threatening. Considerable attention should be given to relative risks & benefits, benefits definitely outweighing the risks & individualization of treatment is necessary. The decision to use Corticosteroids should be made when a presumptive diagnosis has been made & when available information suggests a reasonable possibility of benefit. Criteria to use should be clearly identified and should be objective or quantifiable [6].

Topical corticosteroids have made a dramatic contribution to dermatology since the introduction of “compound F” or hydrocortisone in 1952 and have become the mainstay of dermatologic treatment of a wide range of inflammatory and non-infectious conditions. Topical corticosteroids are today among the most commonly prescribed medications in dermatology clinics. The clinical effects are mediated by their anti-inflammatory, vasoconstrictive, anti-proliferative and immunosuppressive properties [7]. Topical corticosteroids have been used for over 60 years and their introduction was a milestone in dermatology, most commonly preferred are topical treatments for inflammatory dermatoses such as psoriasis and atopic dermatitis. Over the years, investigations have given fixated on approaches to enhance potency of the anti-inflammatory and immunosuppressive dimensions of these drugs, whereas curtailing adverse effects [8].

Systemic steroids are also called glucocorticoids or cortisone. They include: Prednisolone, methylprednisolone etc. Systemic steroids are used to treat various skin diseases such as eczema, bullous disorders, and other papulosquamous disorders. Systemic steroids are given orally or intravenously. “Systemic” refers to the fact that they affect the complete body rather than just the skin, the side effects are Insomnia, change in mood or behavior, increase appetite. These steroids are used to treat a variety of illnesses. These medications, while often vital and even life-saving, can have both short- and long-term negative effects. Long-term adverse effects can be severe in some cases [9].

The use of corticosteroids brought a remarkable change in the field of dermatology as these drugs afford a dramatic relief in inflammatory and pruritic skin conditions but may lead to deleterious effects if irrationally used. Corticosteroids have a number of negative effects and interactions with other medications. However, it should not be abruptly stopped, but rather, should be progressively stopped [10].

Materials and Methods

Study Design: This is an observational study.

Study Duration: 6 months.

- Planning-1 month
- Data collection-3 months
- Interpretation -1 month
- Thesis writing- 2 month

Study Site: The study was conducted in the dermatology department of ESIC Medical College PGIMSR, which is teaching hospital located in Rajajinagar, Bengaluru.

Study Population: The study was conducted outpatient department of dermatology.

Sample Size: A total of 272 subjects fulfilling the inclusion and exclusion criteria were included in the study.

Inclusion Criteria

- Patients of both genders and above 18 years of age who has been diagnosed with any dermatological disease, attending dermatology OPD.
- Demographic details and treatment details related to systemic and topical steroids of the patients willing to participate in the study will be conducted using data collection form.

Exclusion Criteria

- Pregnant and lactating women.
- Patients on oral/topical corticosteroids for any other then dermatological diseases. c. Patients who are not willing to give informed consent.

Source of Data

The data was collected from the dermatology department of the hospital. The source of data is:

- Patients OPD slip.

Study Materials

Patient data collection form: Data was collected by using a self-design data collection form for dermatology department, which is consists of details like age, sex, disease condition and medications details of the of the patients.

Study Procedure

Subjects for the study were identified by the investigators during hospital visits based on the inclusion and exclusion criteria. The patients were explained the purpose of the study and the inform consent was obtained. Patients’ demographic and clinical data were collected form the patients OPD slip. The data included IP numbers, patient demographics, disease condition and medications details of

the patients as shown on the data collection form. The collected data was then entered in Microsoft Excel sheet and the appropriate analysis of drug utilization pattern was done.

Statistical Analysis

All recorded data were entered using Microsoft Excel software and data was analyzed for mean, Standard Deviation and Percentage calculations wherever applicable.

Results

This study was conducted over a period of three months which included 272 subjects visiting out-patient department of dermatology in ESIC-MC & PGIMSR, Rajajinagar, Bengaluru.

Age distribution of subjects: Majority of the patients in the study 94 (34.56%) belonged to age group of 41-50 years of age followed by age group 31-40 years 55 (20.22%), 51-60 years 51 (18.75%), 21-30 years 26 (9.56%), 61-70 years 17 (6.25%), 18-20 years 14 (5.15%), 71-80 years 12 (4.41%), 81-90 years 03 (1.10%). Detailed distribution of subjects by age is presented in Figure: 1.

Table 1: Age distribution of subjects.

Age groups	Number of subjects	Percentage %
18-20	14	5.15%
21-30	26	9.56%
31-40	55	20.22%
41-50	94	34.56%
51-60	51	18.75%
61-70	17	6.25%
71-80	12	4.41%
81-90	03	1.10%
Total	272	100.00%

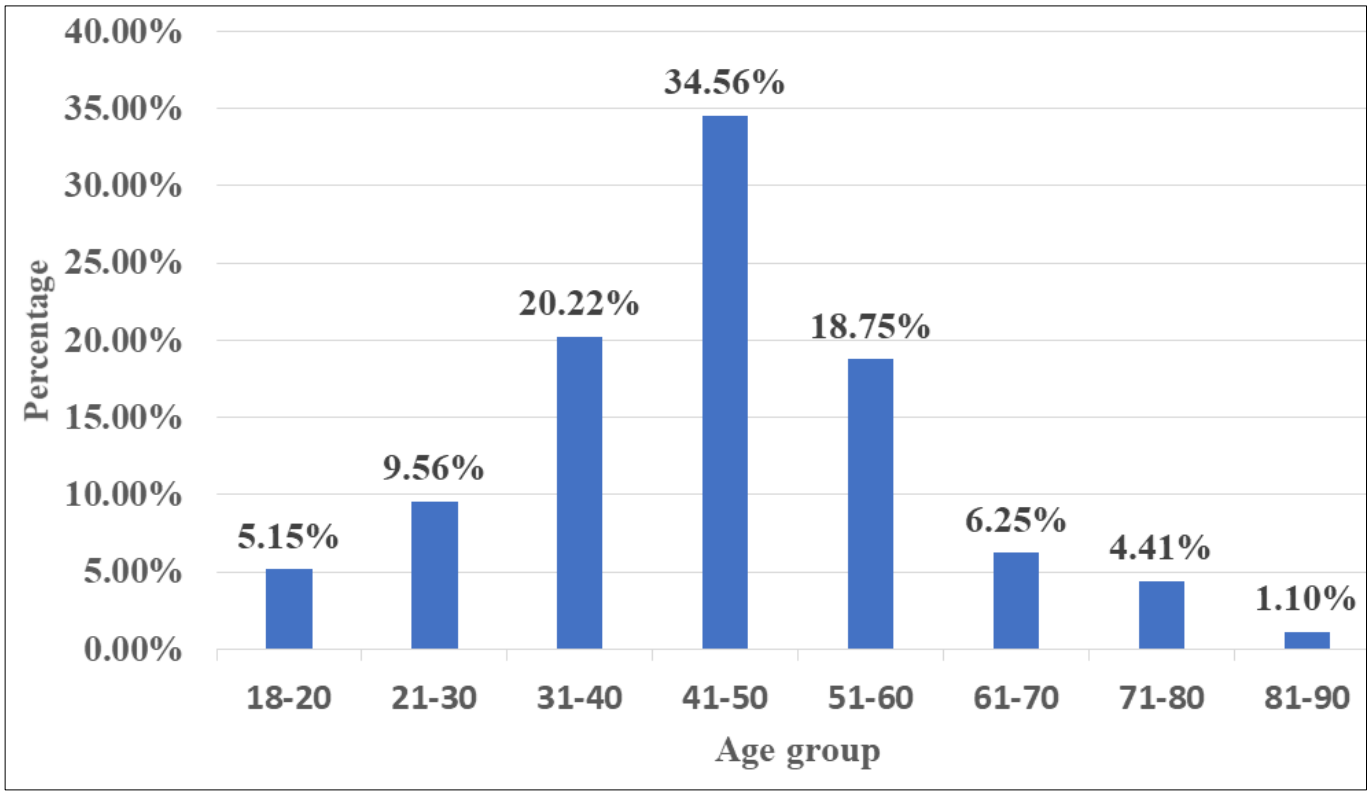

Fig 1: Age distribution of subjects.

Distribution of subjects by gender

Out of 272 subjects included in the study, the majority of the subjects 139 (51.10%) were females. The percentage of males 133 (48.90%) included in the study were lesser than the females. Detailed distribution of subjects by gender is presented in Figure: 2.

Table 2: Distribution of subjects by gender.

Gender	Number of subjects	Percentage%
Male	133	48.90%
Female	139	51.10%
Total	272	100.00%

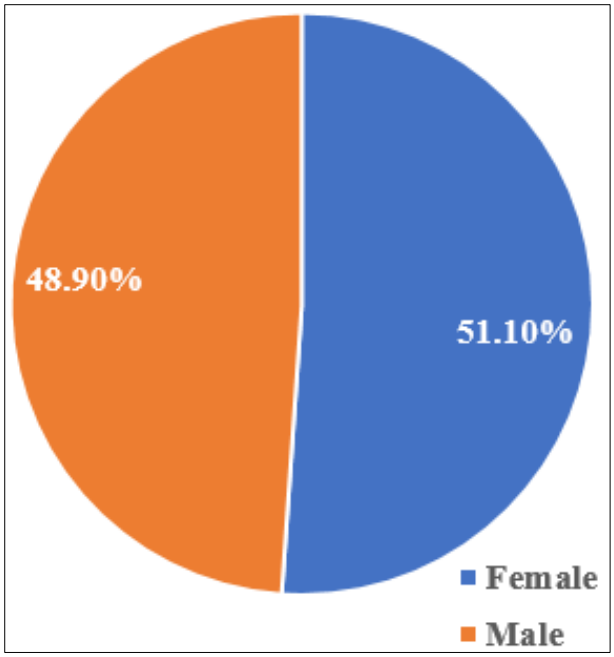

Fig 2: Distribution of subjects by gender.

Distribution of skin diseases among study subjects receiving corticosteroids

Out of 272 subjects included in the study, the majority of the subjects is dermatitis 53 (19.49%), followed by psoriasis 50 (18.38%), lichen simplex chronicus 16 (5.88%), varicose veins 12 (4.41%), urticaria 11 (4.04%), vitiligo 9 (3.31%), chloasma 8 (2.94%), lichen planus 8 (2.94%), prurigo 8 (2.94%), seborrhoea capitis 7 (2.57%), eczema 6 (2.21%), keloid scar 6 (2.21%), xerosis 6 (2.21%), pemphigus vulgaris 5 (1.84%), polymorphus light eruption 5 (1.84%), telogen effluvium 6 (2.21%), alopecia areata 4 (1.47%), acne 3 (1.10%), intertrigo 3 (1.10%), melanosis 2 (0.74%), others 44 (16.18%).Detailed distribution of skin diseases among study subjects receiving corticosteroids Figure: 3.

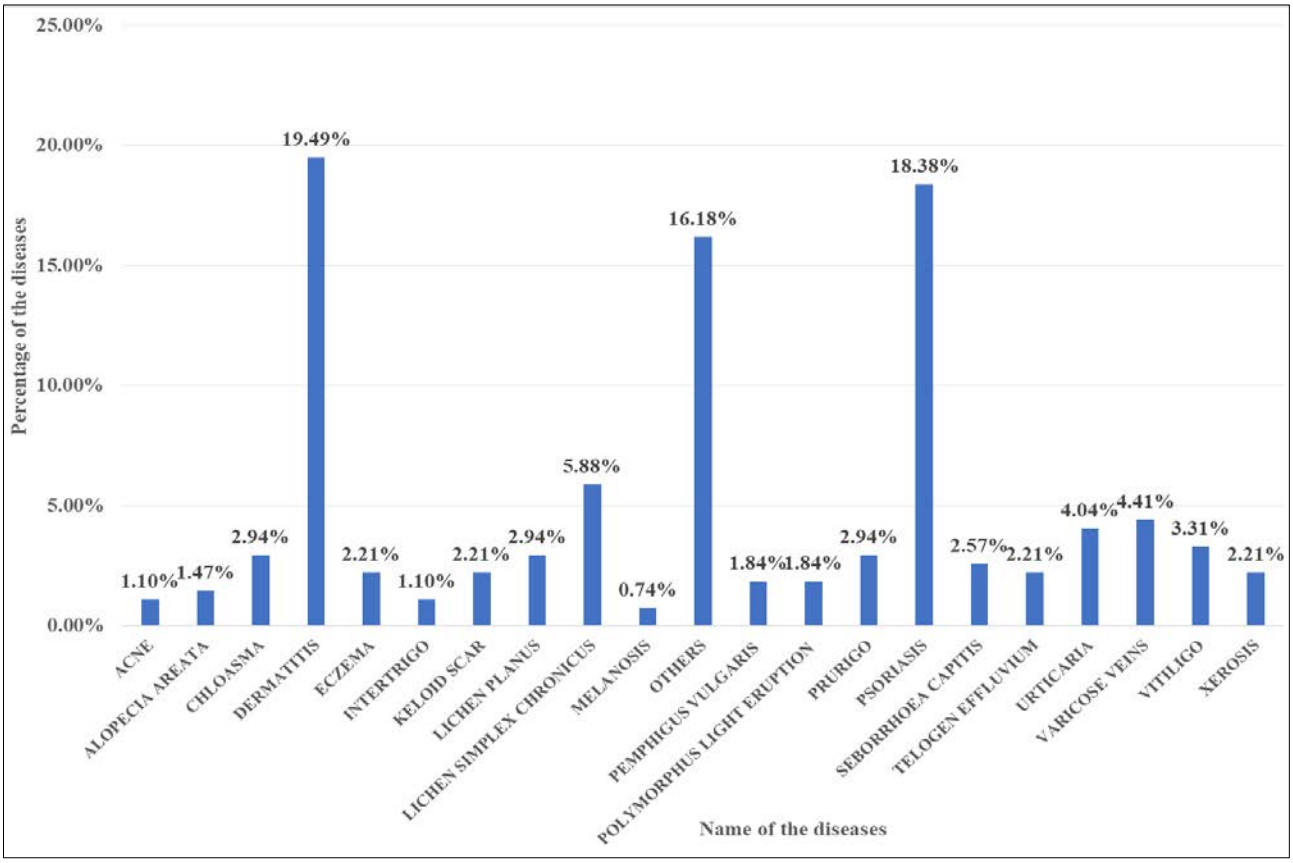

Fig 3: Distribution of skin diseases among study subjects receiving corticosteroids.

Distribution of corticosteroids based on topical and systemic

In my study, topical corticosteroids were used majority of the patients 246 (90%), followed by systemic of 10 (4%), and topical and systemic both is 16 (6%). Detailed distribution of corticosteroids based on topical and systemic Figure: 4.

Table 4: Distribution of corticosteroids based on topical and systemic.

Corticosteroids	Number of Patients	Percentage %
Topical Corticosteroids	246	90%
Systemic Corticosteroids	10	4%
Topical & Systemic Both	16	6%
Total	272	100%

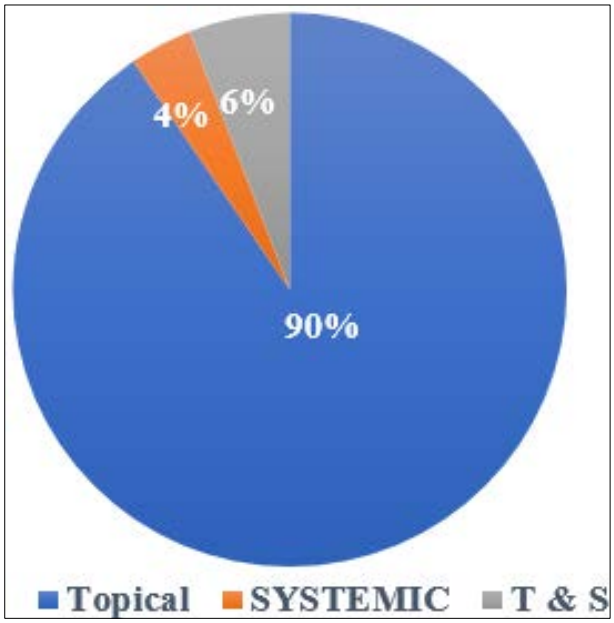

Fig 4: Distribution of corticosteroids based on topical and systemic.

Distribution of subjects by prescribed single and dual corticosterids

Out of 272 subjects included in the study, the majority of the subjects 240 prescribed single corticosteroids (88.24%). The percentage of two corticosteroids was 32 subjects (11.76%). Detailed distribution of subjects by prescribed single and double corticosteroids is presented in Figure: 5.

Table 5: Distribution of subjects by prescribed single and two corticosteroids.

Corticosteroids prescribed pattern	Number of subjects	% Of corticosteroids
Single corticosteroids	240	88.24%
Two corticosteroids	32	11.76%
Total	272	100.00%

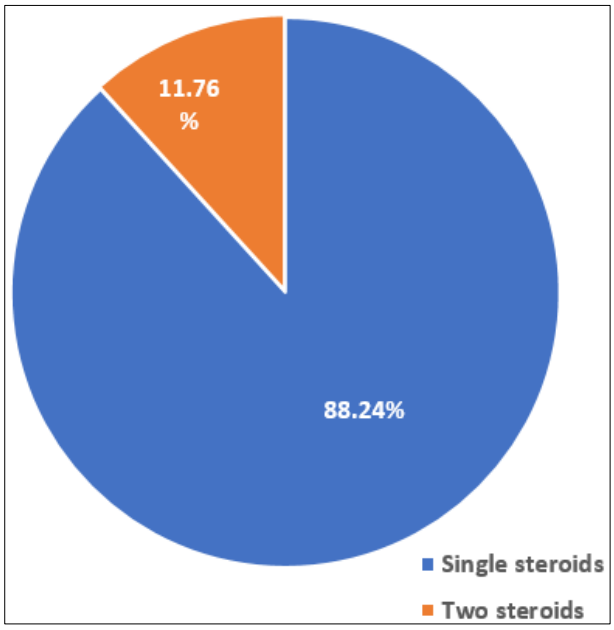

Fig 5: Distribution of subjects by prescribed single and two corticosteroids.

Distribution of corticosteroids based on diseases pattern

In this study total 272 patients and total 304 corticosteroids were utilized in dermatology. Mostly dermatitis was using more corticosteroids drugs and there will be 53 patients and 62 steroidal drugs present (20.39%) and followed by psoriasis 50 patients 57 steroidal drugs (18.75%), lichen simplex chronicus 16 patients 19 steroidal drugs (6.25%), varicose veins 12 patients 13 steroidal drugs (4.28%), urticaria 11 patients 11 steroidal drugs (3.62%). Detailed distribution of corticosteroids based on diseases pattern Figure:6.

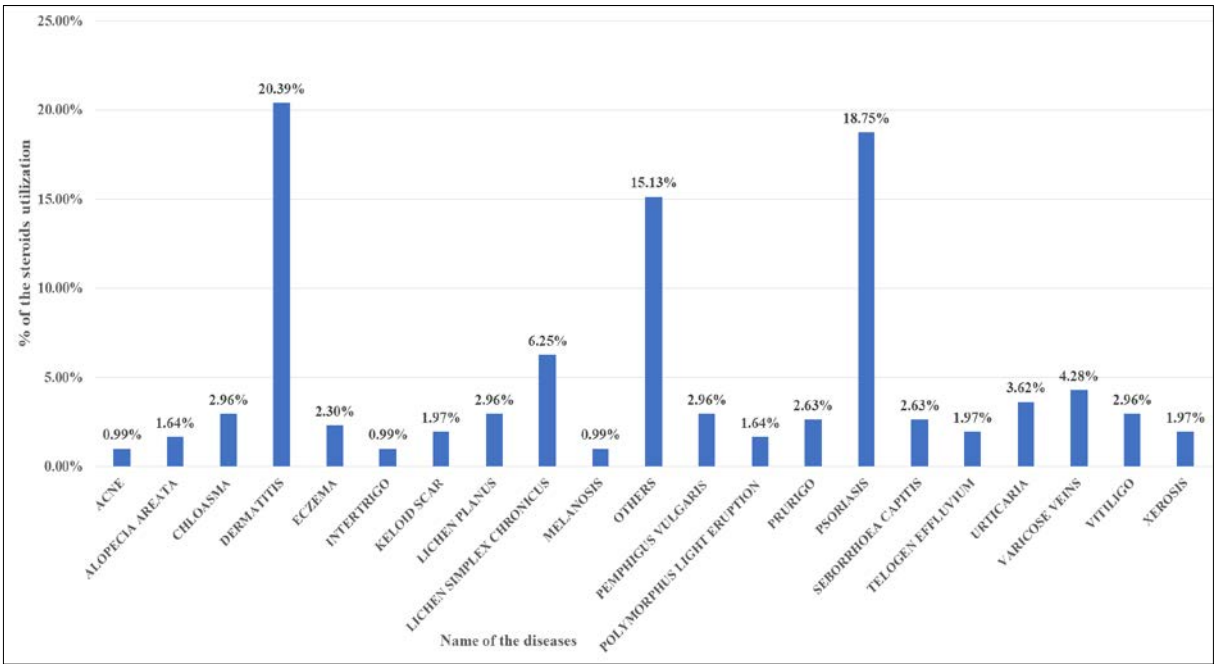

Fig 6: Distribution of corticosteroids based on diseases pattern.

Distribution of steroids utilization in dermatology

In this study total 272 patients and total 304 corticosteroids utilization in dermatology. Mostly using drugs is desonide 110 (36.18%) followed by clobetasol 91 (29.93%), mometasone 74 (24.34%), prednisolone 22 (7.24%), betamethasone 2 (0.66%), flucortisone 2 (0.66%), dexamethasone 1 (0.33%), halobetasol 1 (0.33%), triamcinolone 1 (0.33%). Detailed distribution of steroids utilization in dermatology Figure:7.

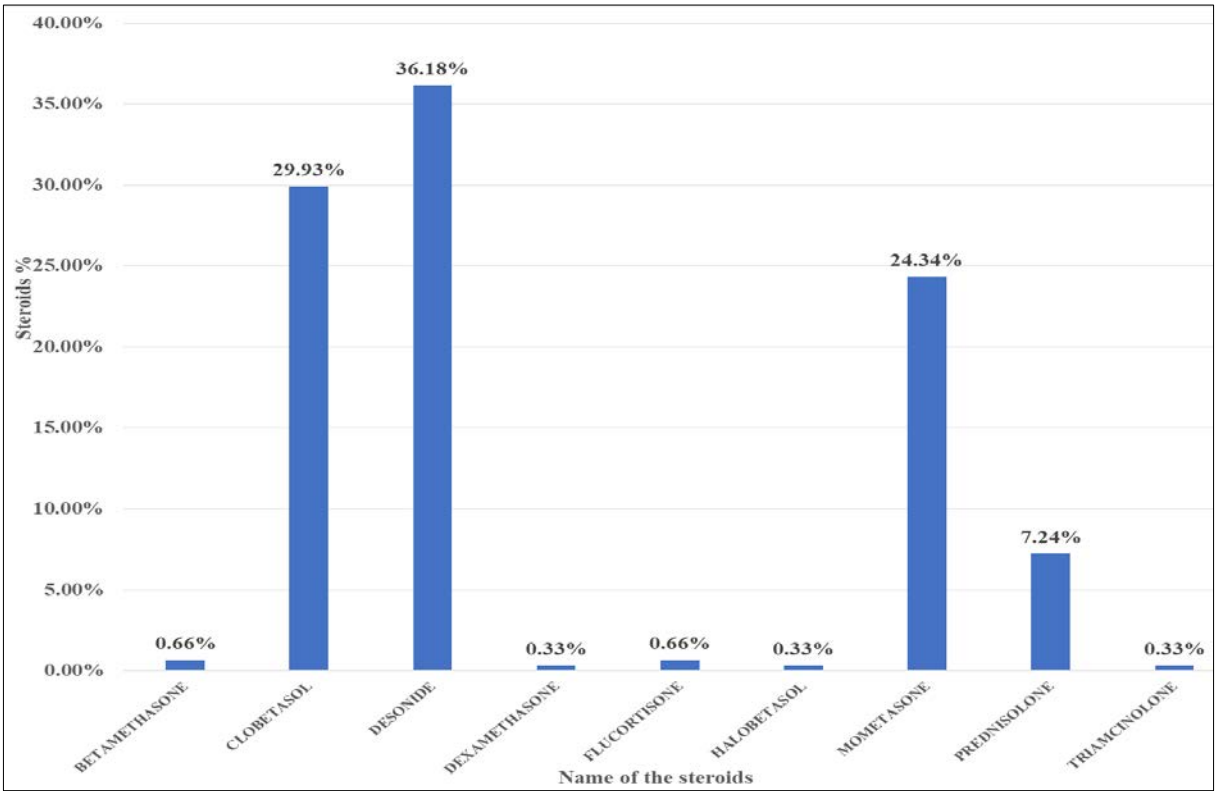

Fig 7: Distribution of steroids utilization in dermatology.

Distribution of corticosteroids based on dosage form

In this study total 272 patients and total of 304 corticosteroids were prescribed. Majority of prescription dosage form is lotion 116 (38.16%), followed by ointment 94 (30.92%), Cream 68 (22.37%), tablet 24 (7.89%), gel 1 (0.33%), Injection 1 (0.33%). Detailed distribution of corticost eroids based on dosage form Figure: 8.

Table 8: Distribution of corticosteroids based on dosage form.

Dosage form name	Number of dosage form	Percentage %
Cream	68	22.37%
Gel	1	0.33%
Injection	1	0.33%
Lotion	116	38.16%
Ointment	94	30.92%
Tablet	24	7.89%
Total	304	100%

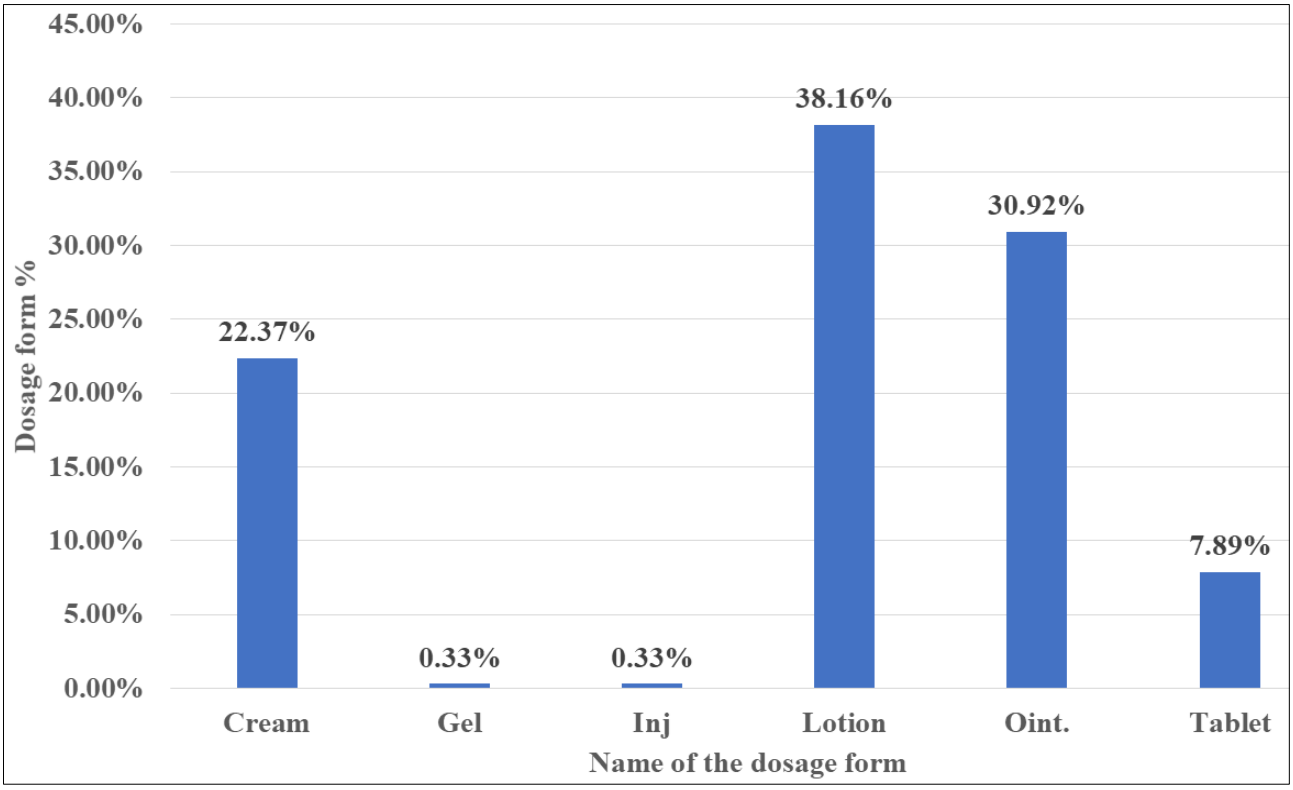

Fig 8: Distribution of corticosteroids based on dosage form.

Discussion

This study was a three months long observational study conducted with the objective of evaluate the utilization of topical and systemic steroids in treating various skin disease. in the out-patient department of dermatology, ESIC MC-PGIMSR, Rajajinagar, Bengaluru. A total of 272 subjects were enrolled in the study, based on various inclusion and exclusion criteria.

The subjects were categorized according to age, gender, diseases conditions and medications. Out of the 272 subjects who participated in the study, the majority of them belonged to the age group of 41-50 years 34.56% (n=94), and the number of males 48.90% (n=133) were less than the females 51.10% (n=139). The majority of the subjects is dermatitis 19.49% (n=53). The mostly preferred drugs tropically prescribed 90% (n=246) and mostly using corticosteroids in dermatology is desonide lotion.

The study showed among the subjects aged 41-50 years (34.56%) are more. The number of males 48.90% (n=133) were less than the females 51.10% (n=139) which was similar to the study conducted by Dr. Priyanka S *et al*., (2019) [13] comprised of study population with age distribution out of 250 subjects, 41-50, 16.4% (n=45) and the number of males 46.4% (n=116) were less than the females 53.6% (n=134).

Now regarding the distribution of skin diseases among study subjects receiving corticosteroids, most of the subjects is dermatitis 53 (19.49%), followed by psoriasis 50 (18.38%), which was similar to the study done by Purushotham K *et al*., (2016) [15] in that study the skin conditions commonly encountered were dermatitis (41%), psoriasis (12%), pustulosis (8%). In another study conducted in the Dermatology Department, which is done by Bhuvana Kolar Bylappa *et al*., (2015). In that study the most common skin conditions encountered were dermatitis (47%) and psoriasis (14%) [11].

In this study mostly preferred drugs were prescribed topically 90% (n=246) and similar study was done by the Dr. Laxmi Bhagunde *et al*., (2019). In that study 76% of corticosteroids being prescribed topically, whereas 24% of all corticosteroids prescribed by oral/ parental and intralesional route. The topical corticosteroids were in

prescribed in two vehicle forms creams (229) and ointments (27) [12].

In my study the majority of the prescription prescribed single corticosteroids out of 272 patients single corticosteroids prescribed for 240 patients (88.24%) and dual corticosteroids prescribed for 32 patients (11.76%) which was evident from the study conducted by Dr. Priyanka S *et al*., (2019) out of 250 patients, one corticosteroid was prescribed for 91.2%, two for 8% whereas three drugs were prescribed less (0.8%) [13].

In this study mostly prescribed corticosteroids are desonide lotion 36.18% followed by clobetasol propionate 29.93% and which was evident from Shatavisa Mukherjee *et al*., (2016) Most commonly prescribed steroids were clobetasol (44%), followed by betamethasone dipropionate (25%), mometasone (12%), prednisolone (10%), respectively [14].

Conclusion

The study was conducted in the outpatient department of dermatology in the teaching hospital in urban premises of Bengaluru comprising of patients who met the inclusion and exclusion criteria. The study concluded that most of the patients enrolled in the study were females, the age distribution was seen highest in age group between 41-50 years. The result of the study showed age, gender, diseases pattern who receiving corticosteroids and drug utilization pattern of corticosteroids in dermatology. The distribution of skin diseases among study subject receiving corticosteroids was seen highest in patients having dermatitis (n=53). The most of corticosteroids prescribed topically. Most subjects prescribed single corticosteroids. The most common drugs were prescribed in dermatology is desonide and then clobetasol propionate and most commonly lotion and ointments were preferred.

Reference

1. Sachdeva PD, Dr. Patel BG. Drug utilization StudiesScope and Future perspectives. International Journal on Pharmaceutical and Biological Research. 2010;1(1):11- 17.
2. Vineeta D, Sharad P, Ganachari MS, Geetanjali S, Santosh S. Assessment of Drug Prescribing Pattern and Cost Analysis for Skin Disease in Dermatological Department of Tertiary Care Hospital: An Interventional Study. J Pharmacovigil. 2016 Jun 8;4(3):211.
3. Motghare VM, Bajait CS, Turnakar A, Sontakke SD, Chavan S. Prescription pattern and adverse drug reaction profile of drugs prescribed in dermatology out-patient department at a tertiary care teaching hospital. IJPP. 2016;3(4):173-7.
4. Suhaina AS. Drug prescribing pattern with cost analysis and monitoring of adverse drug reactions in department of dermatology: A prospective observational study (Doctoral dissertation, SreeMookambika Institute of Medical Sciences, Kulasekharam).
5. Jena M, Panda M, Patro N, Mishra S. Pattern of utilization of corticosteroids in department of dermatology at a tertiary care teaching hospital. J Chem Pharm Res 2014;6:86-91.
6. Ontjes DA. Adrenal Corticosteroids, C orticotrophin releasing hormone, Adrenocorticotrophin and Antiadrenal drugs. Munson PL, Muler RA, Breese GR (Eds.). Paul L Munson's, Principles of Pharmacology-Basic concepts and clinical applications. Newyork, Chapan and Hall; c1995. p. 757-76.
7. Sulzberger MB, Witten VH. The effect of topically applied compound F in selected dermatoses. J Invest Dermatol. 1952;19(2):101-2.
8. Brazzini B, Pimpinelli N. New and established topical corticosteroids in dermatology. American journal of clinical dermatology. 2002 Feb 1;3(1):47-58.
9. Gupta P, Vijayalakshmi B. Corticosteroid Physiology and Principles of Therapy.Indian J Pediatr. 2008;75(10):1039-1044.
10. Stacey, Stephen K, Mark Mc Elency. "Topical Corticosteroids: Choice and Application". American Family Physician. 2021;103(6):337-43.
11. Bylappa BK, Patil RT, Pillai RT. Drug prescribing pattern of topical corticosteroids in dermatology unit of a tertiary-care hospital. Int. J Med Sci Public Health. 2015 Dec 1;4(12):1702.
12. Bhagunde L, Tamboli SB, Chhabra R. Evaluation of Prescribing Pattern of Corticosteroids in Dermatology OPD in Tertiary Care Hospital. JMSCR. 2019 Jun;7(6):410-419.
13. Priyanka S, Mallareddy S, Manasvini CH, Zeba Tarannum S, Rashamitha B, *et al*. Drug use evaluation of corticosteroids by clinical pharmacists in dermatoilogy department of a Tertiary Care teaching Hospital. The Pharma Innovation Journal 2019;8(5):74-80.
14. Mukherjee S. Assessment of corticosteroid utilization pattern among dermatology outpatients in a tertiary care teaching hospital in Eastern India. International Journal of Green Pharmacy (IJGP). 2016;10(04):178-182.
15. Ward LP, Purushotham KP, Manory RR. Studies on the surface modification of TiN coatings using MEVVA ion implantation with selected metallic species. Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms. 2016 Feb 1;368:37-44.