

## Prospective Study on Utilization Pattern of Corticosteroids on DVL Patients at a Tertiary Care Teaching Hospital.

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### ABSTRACT:

**BACKGROUND:** Corticosteroids are steroid hormones secreted by adrenal cortex. It is extremely useful in the treatment of skin disorders. They have an important role because of their anti-inflammatory, immunosuppressive and anti-proliferative effect on keratinocytes. **AIM:** To study the utilization pattern of corticosteroids for various dermatological condition at a tertiary care teaching hospital. **METHODOLOGY:** A hospital based prospective observational study for 6 months on Rajah Muthiah Medical College, Chidambaram by enrolling outpatient and inpatient considering study criteria. Prescription with atleast one steroid were collected and analysed for utilization pattern of corticosteroids. **RESULTS:** Out of 75 patients studied, females (76%) were highly prescribed with corticosteroids than males (24%). Age group of 51-60 (25.3%) were highly prescribed with corticosteroids. Corticosteroids were highly indicated for dermatitis (34.3%). Prednisolone (47.9%) were highly prescribed. **CONCLUSION:** The drugs were prescribed rationally, and clinical pharmacist were involved in the patient counselling regarding the misuse of corticosteroids. Also involved in the early detection and prevention of Adverse Drug Reaction. Utilization pattern of corticosteroids varies for different hospital sectors.

**KEYWORDS:** Corticosteroids, Utilization Pattern, Prednisolone, Adverse Drug Reaction.

### I. INTRODUCTION

Corticosteroids are steroid hormones secreted by adrenal cortex. Corticosteroids are the drugs which lower the inflammation in the body. They are involved in a wide range of physiologic systems such as stress response, immune response, regulation of inflammation, carbohydrate metabolism, protein catabolism, blood electrolyte levels, and behaviour. Drugs belonging to this class are **glucocorticoids** and **mineralocorticoids**.

Corticosteroids are widely used in all the field of medicine and it is also extremely useful in the treatment of **skin disorders**. It has an important role in dermatology because of their **anti-inflammatory, immunosuppressive** and also **anti-proliferative effects** on keratinocytes. Corticosteroids are used in different dosage forms like systemic, oral, topical, inhalation etc.

Unfortunately, corticosteroids are increasingly being abused or misused. As a result, the problem of steroid phobia is being increasingly recognized by physicians worldwide. It increases the risk of poor clinical response and treatment failure. So proper patient counselling should be given to the patients regarding the usage of corticosteroids and their related side effects due to their prolonged usage. Topical corticosteroids are mostly misused than systemic and oral corticosteroids.

In order to improve the rational use of drugs, the pharmacists have an important role in identifying and solving the problems which has correlation with the use of drugs and actual Drug Related Problems (DRP). DRPs are usually caused by the increased number of drugs that were consumed by the patient (poly-pharmacy) to overcome the suffering diseases.

In our study, dosage forms such as systemic, oral and topical are taken into account. From the observation, corticosteroids were prescribed for the following diseases: **various types of psoriasis, dermatitis, pemphigus**, and also for **leprosy, systemic sclerosis, erythema nodosum, urticaria, vasculitis and bullous pemphigoid**.

## II. MATERIAL AND METHODS

**Study Design :**Prospective Observational Study.

**StudySite:** Department of DVL, Raja Muthiah Medical College Hospital, Annamalai University, Annamalai Nagar, Tamil Nadu.

**StudyPeroid:**November2019 -April2020(6months).

**Study Size** : 75 patients.

**Inclusion Criteria:**

- 1.Patientsofbothgenderofabove 12yearsofage.
- 2.Bothinpatients(IP) andoutpatients(OP)inthedepartmentofDVL.
- 3.Patientswhoareonthetreatment ofcorticosteroids.

**Exclusion Criteria:**

- 1.Patientswhoareunwillingtoparticipate.
- 2.Lactating and pregnant women.

**Study Subject Recruitment Procedure:**

The recruitment of subjects was carried out with the help of physician who has knowledge of patient's medical history. The patient information form includes the details such as patient age, gender, I.P number, past medical and medication history, drug chart details, prescribed dosage , frequency, route of administration and clinical diagnosis. The study procedure was completely explained to the patient/ patient's caretaker and patient consent form will be collected from them. Subjects were selected based on exclusion and inclusion criteria.

## III. RESULTS

A totalnumberof75patients wereenrolled inourstudy.Allenrolledpatients completedthestudy. Females (76%)werehighlyprescribedwithcorticosteroidsthانmales (24%). Patientsbetweentheagegroupof51-60werehighlyprescribedwithcorticosteroidsofabout25.3%(19patients)andthepatientsbetweentheagegroup of71-80wereleastprescribedwithcorticosteroidsofabout4%(3 patients). Corticosteroids were highly prescribed for dermatitis of about 34.3% (25 patients),next to it, prescribed for leprosy of about 16.4% (12 patients) and prescribed least for scabies of about 1.4%(1patient). Oral corticosteroids were highlyprescribed of about 47.94% (35 prescriptions) and systemic corticosteroids were least prescribed of about12.33%(9prescriptions). 26.7%(20prescriptions)wereprescriptionswithinteractionsand73.3%(55prescriptions)wereprescriptionswithout interaction.Costeffectiveanalysisfororalcorticosteroids were done.Oralcorticosteroid prednisolone was prescribed in most of the prescriptions. Here, we took wysolone20 mg OD and did cost analysis for four diseases include dermatitis, pemphigus, psoriasis andleprosy,whichwerehighlyprescribedwithcorticosteroidsinthisstudy.

**Table 1:** Gender wise distribution of patient

GENDER	NO. OFPATIENTS	PERCENTAGE (%)
Male	18	24
Female	57	76

In this study, females were highly prescribed with corticosteroids.

**Table 2:** Age wise Distribution

AGE	NO. OFPATIENTS	PERCENTAGE(%)
13-20	8	10.7
21-30	11	14.7
31-40	15	20
41-50	12	16
51-60	19	25.3

61-70	7	9.3
71-80	3	4

In this study, the age group between 51-60 were highly prescribed with corticosteroids.

**Table 3:** Indications for Corticosteroids Prescribed

INDICATION	NO. OF PATIENTS	PERCENTAGE (%)
Psoriasis	10	13.7
Sclerosis	4	5.5
Vasculitis	2	2.7
Urticaria	2	2.7
Bells Palsy	2	2.7
Scabies	1	1.4
Polymorphic Light Eruption	3	4.1
Bullous Pemphigoid	3	4.1
Dermatitis	25	34.3
Vitiligo	4	5.5
Leprosy	12	16.4
Pemphigus	5	6.9

In this study, corticosteroids were highly prescribed for dermatitis.

**Table 4:** Types of Corticosteroids

TYPE OF CORTICOSTEROID	NO. OF PRESCRIPTION	PERCENTAGE (%)
Systemic	9	12.33
Oral	35	47.94
Topical	29	39.73

Oral route of administration was highly prescribed in this study.

**Table 5:** Interaction of Corticosteroids

CATEGORY	NO. OF PRESCRIPTIONS	PERCENTAGE (%)
Prescriptions with Interaction	20	26.7
Prescriptions without interaction	55	73.3

In this study, mostly the prescription were without interaction.

**Table 6:**Category of Interaction

INTERACTIONS	NO. OF PRESCRIPTION	PERCENTAGE(%)
Potential	11	55
Moderate	5	25
Both	4	20

Among the prescription with interaction, potential interaction was highly noted. It was taken into the care of physician and the drugs which cause potential interaction were replaced with the non-interactive drugs of corresponding category.

**Table 7:** Cost Effective Analysis of Corticosteroids

	DERMATITIS	PEMPHIGUS	PSORIASIS	LEPROSY
Cost per tablet (in rupees)	2.48/-	2.48/-	2.48/-	2.48/-
Duration of treatment	10-21 days	1-3 months	2 weeks	4 months
Total cost for the treatment (in rupees)	52.16/-	226.04/-	34.77/-	303.04/-

Based on cost effective analysis did for oral corticosteroid prednisolone 20 mg for four diseases, the conclusion drawn was the cost of treatment varies depending on the duration of treatment and the severity of the disease on the DVL patients.

#### IV. DISCUSSION

The study on utilization pattern of corticosteroids in DVL department conducted in various hospital setting at different places across India has been reviewed, discussed and compared with this study.

The study conducted at a tertiary care teaching hospital in Karnataka region result shows that corticosteroid was mostly prescribed for **males** at a age group of **50-60**. The mostly prescribed drug was **Prednisolone** among oral corticosteroids,

**clobetasol** among topical and **Intermediate acting prednisolone** among systemic corticosteroid. The most commonly prescribed type of corticosteroid was oral route.

The study conducted at a tertiary care teaching hospital at Odisha result shows that **males** were highly prescribed with corticosteroids at a age group of 21-30. **Topical** corticosteroid was highly prescribed. **Potent drug interaction** was highly identified.

The study conducted at a tertiary care teaching hospital at Salem result shows that corticosteroid was highly prescribed for the indication of **Psoriasis** followed by Pemphigus Vulgaris and leastly prescribed for Eczema and Bullos Pemphigoid. **Systemic** corticosteroid was highly prescribed.

The study conducted at tertiary care teaching hospital at North India result shows that **females** were highly prescribed with corticosteroids and mostly prescribed at a age group of **31-40**. Indication for which corticosteroid mostly prescribed was **Psoriasis** followed by urticaria and leastly prescribed for **Tinea corporis**. **Systemic** corticosteroid was mostly prescribed. **Potent drug interaction** was highly detected.

The result of our study was **females** were highly prescribed of corticosteroids at a age group of **51-60**. Indications for which corticosteroids highly prescribed was **Dermatitis** followed by Leprosy and leastly prescribed for scabies. **Oral** corticosteroid was highly prescribed and **potent drug interaction** was highly seen.

By reviewing all the above studies, as the utilization pattern of corticosteroids varies for different hospital sectors depending upon the sample size, inclusion and exclusion criteria, the place and occupation of the patient, we cannot predict a particular gender and age group will receive a particular dosage form of corticosteroid.

## V. CONCLUSION

In this study, corticosteroids were highly indicated for dermatitis. Dosage forms such as oral, systemic and topical were prescribed in which oral corticosteroids were highly prescribed. Among oral corticosteroids, prednisolone (Wysolone) were highly prescribed. Most of the prescriptions were without interaction. No adverse drug reaction was noted. Cost effective analysis was done for dermatitis, psoriasis, pemphigus and leprosy among the enrolled patients taking oral corticosteroid. The cost of treatment varies depending on the duration of treatment and severity of the disease. The study concludes that the utilization pattern of corticosteroids varies for different hospital sectors depending upon the exclusion and inclusion criteria. So we cannot predict a particular gender and age group will receive a particular dosage form of corticosteroid.

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**DECLARATION**

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