AUDITING PRESCRIPTIONS OF DERMATOLOGY DEPARTMENT IN A TERTIARY CARE HOSPITAL OF BIHAR (INDIA)

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ABSTRACT

Background:various dermatological conditions need to be treated by topical steroids only, if not treated, lead to decline in quality of life. Hence steroids prescribed more commonly and also, they were abused very commonly. So, we designed this study for evaluation of steroid in prescription and also to find out the disease distribution in rural areas of Bihar.

Method: total of 923 patients were enrolled in study duration of 18 months. prescriptions were audited after consent and were evaluated with drug indicators of WHO and were also evaluated for skin disease distribution among patients

Results:out of 923 patients nearly all (100%) prescriptions were good in demographic profile. The most common disease we find in population requiring steroid treatment was dermatitis (40%). Among the steroids most commonly prescribed was Mometasone (21.1%), followed by Clobetasol (18.1%).

Conclusion: The evaluation of this study showed that physicians were quietconsciousabout drug prescribing criteria still a huge room for improvement was also there.

Keywords: Auditing, prescription, dermatology, steroids.

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1. INTRODUCTION

Auditing is an influential and precious tool in pharmacologist's hand to improve various aspects of a prescription[1]. As we all know that prescription is a legally valid order, given in a written form to a patient for treatment and diagnostic purposes by a physician holding a valid medical license.[2,3]

The corticosteroids or glucocorticoids were first introduced in 1950s, for treatment of various inflammatory disorders[4], since then they were extensively prescribed in various diseases. Moreover, they were also included in Essential list of drugs and also under life-saving drugs[5].

This study was conducted on patients of dermatological disorders, wherevarious standard treatment guidelines consider steroids asthe drug of choice or first line drugs. Most importantly as skin disorders are local in nature so steroids were prescribed very often without the systemic side effects they have. They were proved to be highly effective in some dermatological conditions, so were prescribed very commonly, but on long term use they provide various effects mostly harmful to the patients.[6, 7] They are also considered asoverthe counter (OTC)[8] drugs so are very commonly abused and irrationally used of various conditions. In view of such perspectives, we needed to keep a constant record of prescriptions they were prescribed and about the deleterious effects they produce.

Some resources also indicate that the population (study population) is very much commonly affected by dermatological disorders[9], so we got the opportunity to study such a vast patient database. We designed this study to mainly focus on dermatological

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disorders which are common in Bihar and their mainstay of treatment is steroids. Monitoring of drug pattern also exposes the rationality behind the prescription and also the awareness of the physicians towards it.

There are core WHO[10] indicators for prescription pattern study, but many of them are not applicable in dermatological disorder, so we designed this study according to standard treatment guidelines the dermatologists use to treat patients.

2. REVIEW OF LITERATURE

In this study we used steroids on patients suffering from various dermatological disorders. The roots of use of steroids goes back to 1952 where Sulzberger et. al.[11]used tropical steroids (TCS) on cutenaous inflammatory disorders. Heconcluded in his research that, TCS were also being evaluated for various dermatological disorders.

As we go through the literature on use of steroids in dermatological conditions, we found that they were the mainstray of treatment in various dermatological disorders [12, 13]

The drug utilization study dates back to 1960s whereDrug Utilization Drug Group (DRUG) was developed in Oslo. They develop a system for auditing the drug utilization as Daily Defined Dose (DDD).[14]

WHO[15]recommended the pattern to be followed for research in drug utilization studies, but as for dermatologicaldisorders standard treatment guidelines vary, much from it. So we developed a self-designedproforma for evaluation of drug utilization in dermatology department. And furthermore as steroids were prescribed most commonly in skin disorders we only focus on auditing prescription containing them exclusively.

As we searched literature we found some valuable studies conducted on steroids in dermatological disorders. A historical study conducted by Robert G, et al in 1961 was one of such kind, as it also demonstrates effect of steroids in cancerous skin lesions. This study also laid the foundation of use of steroids in various dermatologicalcategories.[16]

As we move further in literature findings, we found an interesting study conducted by Sarkar C, et. al.[17]in 2001. They found that in dermatology department most commonly prescribed drugs (containing active pharmaceutical agent) were steroids. They also demonstrated that FDCs were also prescribed in 28% of the cases.

Sweileh W.M[18]conducted an audit study in dermatology department of a famous hospital in Palestine in 2003, found that 25% of the total prescribed drugs were tropical corticosteroids and most of the prescriptions were incomplete in various aspects.

Tikoo D, et al.[19]concreted a study in famous hospital of northern India in 2011, found that antihistaminics were the most prescribed drugs in dermatological conditions followed by skin protective agents. The steroids prescribed by physicians were scarce.

Two of exclusive studies, nearly similar to our study, conducted in 2011[20]and 2012[21] were having similar results. They both concluded that steroids were the most common prescribed drug in the skin department.

Mirshad PV, et al.[22] and Rathod SS, et al.[23] published their prescription audit studies in 2013. They found that 44.7% of patients reporting dermatological department were on steroid prescription and 28.1% having topical prescriptionrespectively.

Somaraju VR et al. conducted a study in 2016[24], stated that 19.4 % of prescriptions were having steroid preparations and majority of them were in topical rout.

A very recent study conducted by Chhabra N. et. al,[25] in 2021aboutsteroid awareness of dermatologypatient gave us very

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alarming results. It showed the results that steroids were prescribed commonly but many (70%) of patients use steroids without prescription.

Hence from the above knowledge of prescriptionaudit we conclude that it is of paramount importance to do audit studies in dermatology department and especially for steroid use, as to protect patients from undue side effects of the same.[26,27,28]

3. MATERIAL AND METHODS

a. Aims and objectives

a. To know the prescribing behavior of corticosteroids in various dermatological disorders, by the physicians in the Dermatology OPD of a tertiary care teaching hospital in Bihar (Primary)

b. To identify the areas of improvisation in the existing prescribing pattern (Secondary)

b. This prospective observational study, was conducted to assess the prescribing behavior of corticosteroids in various dermatological disorders by the dermatology practitioners in this institute

c. Selection of prescriptions and data collection (after consent) were done in the Dermatology out-patient department of our institute whereas the preparatory work, data compilation and analysis were performed at the department of Pharmacology

d. The inclusion and exclusion criteria were designed, and the patients fulfilling them were enrolled in study.

e. We used self-designed form to collect data, then it was entered in various Microsoft (r) tools for analysis.

f. This study was ethically approved by institutional ethical committee.

g. Sample size was calculated accordingly

h. This study was conducted for total duration of 18 months.

i. Only the patients who needed steroid therapywere exclusively included in the study.

j. Analysis was done using SPSS software (version16) and verified with Graph pad prism.

4. RESULTS

We collected the data of 923patients after full consent on self-designed proforma. We entered the data on Microsoft (R) Excel spread sheet and analyzed it using various tools. Data was represented on charts and tables for easy presentation and interpretation. Following were the results of analysis-

a. Demographic data –as we analyzed, all the prescriptions had full details of patient's name (100%), age(100%), sex(100%) and address(100%).

b. The general advice /special instructionswere mentioned in 774(83.4%) patients.

c. All the patients were prescribed steroids systemic in 10.9% and topical in 89.1%

d. Mean age of the study sample was 35.19; maximum being 71years and minimum 12years (with a standard deviation of 12.28).

e. On gender basis our study participants hadpredominance of female population being 57.1%

f. If we go through socio – economic status of patients most of patients reported were from lower status(33.75%) followed by upper middle status(23.5%)

g. As per the standard classification in dermatology the prescriptions collected were divided under these groups (Table 1)—

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TABLE - 1

Category	No. of prescriptions (%)
i. Dermatitis Or Papulosqamous Dermatoses	372 (40%)
ii. Bullous Dermatosis	24 (2.6%)
iii. Connective Tissue Diseases	18(1.9%)
iv. Neutrophilic Dermatoses	8 (0.8%)
v. Miscellaneous	474 (51.3%)

From the above table we can conclude that most of the patients suffering from dermatological disease are in miscellaneous group which include – vitiligo (5.2%) and scabies (6.5%) and others(39.3%).

This was followed by Dermatitis Or Papulosqamous Dermatoses which includes Lichen simplex chronicus (4.6%), psoriasis(5%) and others(30.4%).

h. Prescription distribution of each corticosteroid (topical & systemic) with respect to different group of dermatological disorders is shown in table- 2.

TABLE - 2

Corticosteroids	**DermatitisOrPapulosquamousDermatoses**	**Bullous Dermatosis**	**ConnectiveTissue Diseases**	**NeutrophilicDermatoses**	**Miscellaneous**	**Total**	**%**
Clobetasol	106	3	3	0	55	167	18.1
Beclomethasone	0	0	0	0	26	26	2.8
Betamethasone Di.	7	0	0	0	0	7	0.8
Clobetasone	5	0	0	0	0	5	0.5
Desonide	0	0	0	0	5	5	0.5
Flucinolone	13	0	0	0	45	58	6.3
Flutivate	27	0	0	0	88	115	12.5
Halobetasol	106	15	15	0	21	157	17.0
Hydrocortisone	0	0	0	0	20	20	2.2
Methylprednisolone	9	6	0	0	10	25	2.7
Mometasone	104	0	0	0	91	195	21.1
Prednisolone	7	0	0	8	61	7	8.2

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Triamcinolone	8	0	0	0	59	67	7.3
Grand Total	**392**	**24**	**18**	**8**	**481**	**923**	**100**

* Coloured part systemic corticosteroids

Most of the patients were prescribed local steroids (89.1%) as already discussed, but here worth mentioning point is, we only found twosteroids given by systemic route Prednisolone and Methylprednisolone.

Most commonly prescribed steroid was Mometasone(21.1%), followed by Clobetasol(18.1%), followed by Halobetasol (17%).

The least prescribed steroid was Clobetasone(0.5%) , Desonide(0.5%) and Betamethasone Di. (0.8%), respectively.

I. Lastly if we compare the drug formulations most of the steroids prescribed were in single proration (78.76%) and fix drug combinations were only prescribed in (21.24%) of patients.

II. One other interesting point we found in our study was Betamethasone Di. And Clobetasone were only prescribed in dermatitis Or papulosquamous dermatoses.

i. On further in depth analysis of dosage schedule we found the following(table - 3) –

TABLE - 3

Corticosteroids	**BD**	**Stat**	**OD**	**Oncemonth**	**Total**	**%**
Clobetasol	42	0	125	0	167	18.09
Beclomethasone	14	0	12	0	26	2.8
Betamethasone Di.	7	0	0	0	7	0.8
Clobetasone	3	0	2	0	5	0.5
Desonide	0	0	5	0	5	0.5
Flucinolone	15	0	43	0	58	6.3
Flutivate	72	0	43	0	115	12.5
Halobetasol	12	0	37	0	157	17.0

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Hydrocortisone	4	0	16	0	20	2.2
Methylprednisolone	0	0	25	0	25	2.7
Mometasone	122	0	73	0	195	21.1
Prednisolone	0	0	76	0	76	8.2
Triamcinolone	0	4	0	63	67	7.3
Grand Total	**399**	**4**	**457**	**63**	**923**	**100**

We found that Clobetasol (27.3%) was prescribed most commonly as OD application followed by Mometasone (15.9%) and we also found that both the systemic steroids were prescribed only as OD dosage schedule.

Again Mometasone (30.9%) was the drugs which was being prescribed BD most commonly followed by Halobetasol(30%)

The only steroid which was prescribed on STAT application and once a month was Triamcinolone.

5. DISCUSSION

As we go through the demographic profile we found that majority of population attending dermatology department were female (57.1%), these results were nearly similar to the study conducted by Nguyen SH*et. al.*[29] indicating female predominance in dermatological studies (54.7%). This observation was spotted by a well known fact that female were more aware of skin conditions and also have more exposure to cosmetic products[30]. But our results vary significantly from other 2 studies by Jena et al[31] and Divyashanthi CM et al[32] where a male preponderance of the study population were observed with 56.6% & 60.48% respectively. As in India we already know that females were neglected and always deemed for equal rights.[33]

We analyzed patients according to criteria of age distribution. We notices that almost every age group had prevalence of skin disorders but, age group of 22-41 years was most prevalent in our study. The Global Burden of Disease study also showed the results that three skin diseases were so prevalent that they were counted in top 10 diseases prevalent worldwide.[34] The age distribution was similar to study conducted by Pathak AK,[9] which also showed similar results as maximum number of patients were from age group 21-40 years (50.93%). Our study results were further nearly same to the study conducted by Javsen et al.[35] It can be attributed to the condition that in this age group people were more aware about the skin conditions and beautification. Second reason can be that this age group of people is more active outside (exposed)in sun, hence precipitates skin conditions related to UV-rays injury. But the results vary from study conducted by Divyashanthi CM[32] where

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majority of patients were from 41-50 years of age.

As we go through the prescription analysis data, we found that demographic data was correctly mentioned in 100% of prescriptions. This shows that prescribers were totally aware of the importance and pattern of prescription writing in this sector. We found similar studies related to this[1, 36, 37]indicating that demographic sector of prescription was followed worldwide with 100% of accuracies.

There were various studies conducted worldwide to generate evidence of socio-economic status relation in to prevalence of skin diseases. Our results showed that most of patients were from low status (33.75%) and the results were in alingnment with other two studies conducted by Cattell V et al [38] and Dagnew MB et al [39] indicated that poverty was a major risk factor for poor health and can cause high skin - morbidity which are transmissible in nature. Some commended skin disease were also associated with household crowding and lack of hygiene in low socio-economic statues[40,41].We can say that in this study socio economic states was as a major factor as this study was conducted in Bihar, a poor socio-economic survey territory.[42]

In the present study (table - 1), the most common cause for consultation in the Dermatology OPD was found to be Dermatitis of various sites (12.3%) followed be different eczematous conditions (10.3%), Vitiligo (6.5%), Scabies (5.2%), Lichen planus (5.1%) and Psoriasis (5%). Results were nearly similar to study Pathak AK et al[9]indicated that dermatitis was 13.5% indistributin but the eczema they reported were 16.62% much higher than that of our results.

On analysis of table – 2 we found that most of patients were prescribed tropical steroids which were similar to result of a study[9] where most of steroidpreparations were topical, very few were systemic. Various studies Gian JA et al[43], Kairuz T et al[44], Seid S et al[45]and Masupye EM et al[46] also showed same results as the topical preparations were more commonly used than systemic ones for dermatological disorders. The above discussion indicates the good counciousness of treating physicians of our hospital for appropriate use of routes of drugs. They were already aware of the fact that in various dermatological conditions local (direct application) is the best route to treat the disease[47].

Topical steroids were usually derived on basis of potency of their action by British Natioanl Formulatory (BNF)[48] and we found in our study that class 2 were most commonly prescribed followed by very potent (class -1) . Our study results are nearly similar to the study conducted by Jena M et al.[31] as there were 44% share of potent (class -2) followed by super potent steroid 36% (class-1). The reason behind is clear that the super potent steroids have more of systemic side effects which were sometimes not acceptable, showing good physician approach towards safety of the patients. But our study result varies much from other studies[22, 32,49]where super potent steroids were prescribed maximally than potent. The logical explanation behind is that patients want fast and aggressive treatment and also physicians want to treat patients faster for various factors.

On analyzing our collected data we found that many of the patients were prescribed single drugs (78.6%) rather than the combinations. This observation is nearly similar to studies conducted by Divyashanthi et al [32], Sarker et al[50]and Jena et al[31], where single drugs were preferred over the fix drug combinations. It shows the awareness of treating physicians about the guidelines parameters by WHO[10]

From table 3 we can see that Clobetasol was prescribed commonly as once a day

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preparation, this indicates that physician was aware of its higher potency and its ethical usage, similarly mometasone was prescribed two times a day commonly (30.9%) indicating that, as it is a class 2 topical steroid group so less potent than clobesterol so need to be applied minimum of two time to make treatment effective.

6. CONCLUSION

We had a great opportunity as group of physicians to audit the most wonderful sometimes called as magical drugs prescribed by dermatologist. We found that there is a huge place for improvement in this sector of prescription as well as drugs. Despite of many efforts taken by authorities to regularize these drugs we also need a standard auditing format for auditing prescriptions in dermatological department. Interventions need to be improved are multidirectional like educating people, tight legislation, regular audit, strict feedback and many more like even involving our policy makers[51]. In our Indian scenario the various authoritative agencies must take the step forward to grasp every opportunity to improve the prescription of topical steroids. Other idea we can share in this article is that, we can educate general people about the steroid use and misuse using the most influential path – the media.

Some ideas like, we can also emphasize to pharmaceutical companiesso that to include proper directions, more specific pictorials (easy to understand) about proper application and sites where this specific steroid can be applies in specific quantity and frequency. We can also advice to licensingauthorities to conduct specific training programs about steroids of not only doctors but to also the nurses and pharmacist.

Furthermore, there must be some rules at every institutional level to audit the prescriptions written by physiciansregularly and to give them feedback in an auspiciousmanner to improve outcomes and to entail cost also. With some of the above measures we can hopefully see the decline in misuse of steroids at every level and father more to see less adverse effects from them as well.

7. CONFLICTS OF INTERESTS, FINANCIAL SUPPORT AND SPONSORSHIP – none

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