



ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.03
TPI 2019; 8(5): 74-80
© 2019 TPI
www.thepharmajournal.com
Received: 21-03-2019
Accepted: 22-04-2019

Dr. Priyanka S
Mallareddy College of pharmacy,
Hyderabad, Telangana, India

Dr. Sridevi Mallareddy
Mallareddy College of pharmacy,
Hyderabad, Telangana, India

CH Manasvini
MNR College of Pharmacy,
Fasalwadi, Telangana, India

S Zeba Tarannum
MNR College of Pharmacy,
Fasalwadi, Telangana, India

B Rashmitha
MNR College of Pharmacy,
Fasalwadi, Telangana, India

R Bhavani Naidu
MNR College of Pharmacy,
Fasalwadi, Telangana, India

Correspondence
Dr. Priyanka S
Mallareddy College of pharmacy,
Hyderabad, Telangana, India

Drug use evaluation of corticosteroids by clinical pharmacists in dermatology department of a Tertiary Care Teaching Hospital

Dr. Priyanka S, Dr. Sridevi Mallareddy, CH Manasvini, S Zeba Tarannum, B Rashmitha and R Bhavani Naidu

Abstract

Background of the Study: The current focus of research is on corticosteroids that can improve skin conditions with its anti-inflammatory and immunosuppressive actions.

Objectives: To obtain information on number of drugs prescribed, their prescribing patterns, duration of treatment and rationality of drug use and side effects of corticosteroids.

Study Design, Study Period & Study Site: A prospective observational case series study was conducted from December 2017- May 2018 at a tertiary care teaching hospital in South India.

Methodology: A total of 250 patients the study is being conducted in the department of dermatology. The participants enrolled in the study involve inpatients and outpatients only after filling a properly written informed consent. The data is collected in a pre-designed data collection form.

Results: A total 250 prescriptions were analyzed having 275 corticosteroids and among them 46.4% were male and 53.6% were females. Majority of patients were between range of 21-30 years and 41-50 years (18%). Clobetasol was found to be mostly prescribed drug (28.4%) followed by betamethasone (16.8%). Most drugs were prescribed rationally some factors like drug administration time were deviating from rationality.

Conclusion: Although most of the drugs were prescribed rationally, involvement of clinical pharmacist in patient care can help in more rational prescribing along with prevention and early detection of side effects which can directly promote drug safety and better patient outcomes.

Keywords: Corticosteroid, immunosuppressive, clobetasol, betamethasone

Introduction

Drug Use Evaluation (DUE) is defined as an authorized, structured, ongoing review of practitioner prescribing, pharmacist dispensing, and patient use of medications. The World Health Organization (WHO) in 1997 defined drug utilization as the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences ^[1].

DUE is an ongoing, systematic process designed to maintain the appropriate and effective use of drugs. It involves a comprehensive review of patient's prescription and medication data before, during, and after dispensing in order to assure appropriate therapeutic decision making and positive patient outcomes ^[2]. Pharmacists participating in DUE programs can directly improve the quality of care for patients, individually and as populations, by preventing the use of unnecessary or inappropriate drug therapy and by preventing adverse drug reactions.

The purpose of a DUE is to ensure that drugs are used appropriately, safely, and effectively to improve patient health status. In addition, continual improvement in the appropriate and effective use of drugs has the potential to lower the overall cost of care.

Thus DUE plays a key role in helping the health care system to understand, interpret and improve the prescribing, administration and use of medications. The principal aim of DU research is to facilitate rational use of drugs, which implies the prescription of a well-documented drug in an optimal dose on the right indication, with correct information and at an affordable price.

Corticosteroids are a class of steroid hormones that are produced in the adrenal cortex of vertebrates. Two main classes of corticosteroids are glucocorticoids and mineral corticoids involved in wide range of physiological processes, including stress response, immune response etc. ^[5]

The data regarding drug usage patterns of corticosteroids in skin conditions are particularly lacking, keeping these facts in consideration, the present study is undertaken to define usage and prescription patterns of corticosteroids in common skin conditions, their availability in the hospital pharmacy. Topical corticosteroids remain central to the management of skin conditions. They are generally effective if used correctly, cosmetically very acceptable do not act as primary irritants. Topical corticosteroids are the most commonly prescribed agents in the treatment of dermatologic conditions.

Methodology

Research Design

Type of Study: Prospective observational case series study

Sample Size: 250 patients.

Data Collection: Data was collected from dermatology ward using structured data

Entry format.

Study Duration: 6 months

Inclusion Criteria: Patients in dermatology ward prescribed with corticosteroids.

Exclusion Criteria: Patients from other departments (general medicine, general surgery, orthopedics, OBG and pediatrics ward).

Study Site: MNR tertiary care hospital, Sangareddy.

Phase 1: A pilot study was carried out for a period of 2 weeks in the department of dermatology to find the scope of study. All the prescriptions containing corticosteroid were monitored to know the dose, dosage form, route of administration and extent of corticosteroid use, and also for conditions in which it has been prescribed.

Obtaining Consent from the Hospital Authority

The study was carried out in the hospital by department of pharmacy practice. So it has to be approved by medical superintend (MS) and same should be informed to all physicians and surgeons of the hospital. For obtaining the consent, a study protocol has been prepared which include proposed title, study site, inclusion and exclusion criteria, objective and methodology about the work to be carried out. Then the protocol of the study was submitted to medical superintend, MS permitted to perform the study by ward round and utilize the hospital facilities through a letter.

Obtaining Clearance Certificate from Institutional Ethical Committee

For obtaining the clearance certificate and application along with study protocol which include the proposed title, study site, inclusion and exclusion criteria, objective and methodology about the work to be carried out was submitted to chairman of the institutional ethical committee if MNR hospital. The study was approved by committee by issuing ethical clearance certificate.

Data Entry Format or Proforma

A separate data entry format for incorporating inpatient and outpatient details was designed it include demographic

details, family history, medical history, diagnosis, categories of drug prescribed, and adverse drug reactions.

Phase 2

Collection of Data

The study was planned to investigate 250 patient records to increase the precision of the Parameters. Patient records from inpatient wards and outpatient wards of the selected dermatology of the hospital were obtained. Prescriptions were also collected. A total of 250 prescriptions written by qualified medical doctors were collected randomly from the wards and analyzed. Latest edition of CIM'S drug manual was used to decode brand name of drugs to generic name for the purpose of analyzer.

Phase 3

Analysis of data: The prescriptions of the selected patients were collected from both inpatient and outpatient dermatology department, paying due attention to inclusion and exclusion criteria and were evaluated prospectively for the presence and fulfillment of the following variables-

- Personal data of patient-Name, age, sex and residency.
- Past medical history.
- Past medication history.
- Reason for admission.
- Drugs prescribed.
- Route of administration.
- Adverse drug reactions.

Data Evaluation: The data collected from all the prescriptions were evaluated using Micromedex software and information regarding the potency of corticosteroid in a prescription, their severity and management were summarized.

Results

The clinical study was carried out with 250 patients who were prescribed with corticosteroids in the department of dermatology, Sangareddy.

Gender Distribution: In the study population of 250 patients, 116 were male patients and 134 were female patients. It indicates female patients were found to be comparatively more, when compared with male.

Table 1: Gender distribution of Study population

Gender	No. of Patients	Percentage (%)
Male	116	46.4
Female	134	53.6

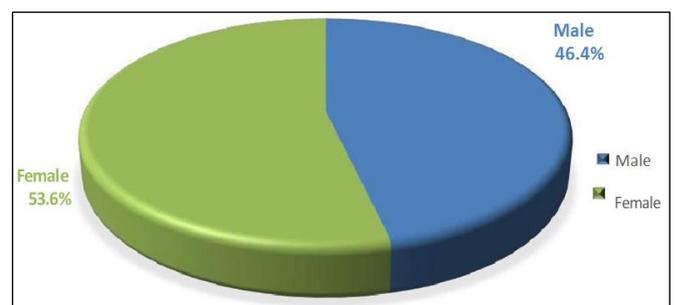


Fig 1: Gender distribution of Study population

Age Distribution: Out of 250 patients, 18% were between 21-30 and 41-50 years whereas the patients belonging to age group of 0-10 years were less (5.2%).

Table 2: Age distribution of study population

Age Group (YRS)	No. of Patients	Percentage (%)
0-10	13	5.2
11-20	34	13.6
21-30	45	18
31-40	41	16.4
41-50	45	18
51-60	41	16.4
≥61	31	12.4

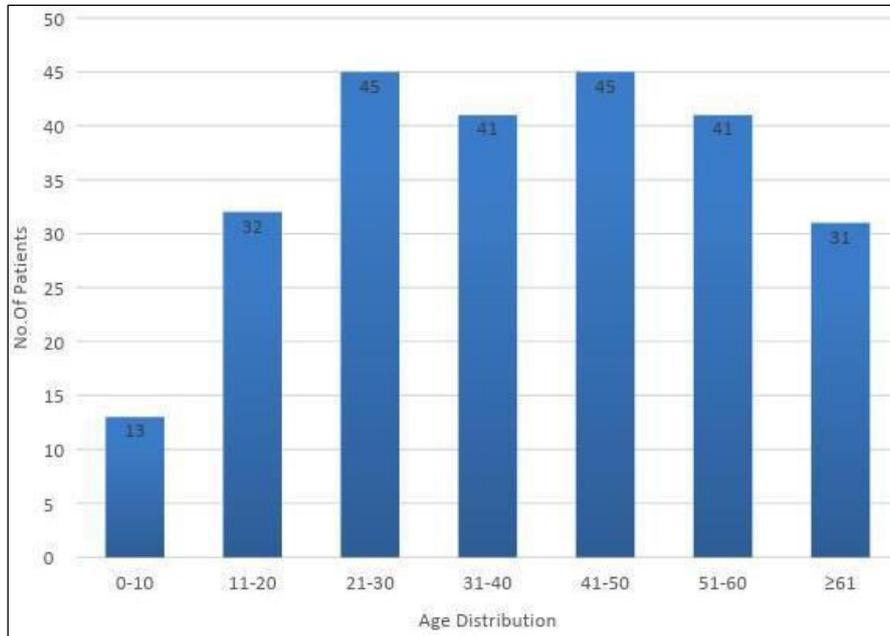


Fig 2: Age distribution of study population

Disease Pattern among Study Subjects Receiving Corticosteroids: In our study, psoriasis was found to be the

major clinical complaint of the patients (19.2%), followed by dermatitis (17.6%) and eczema (14%).

Table 3: Disease pattern among study subjects receiving corticosteroids

Disease	No. of Patients	Percentage (%)
Psoriasis	48	19.2
Dermatitis	45	18
Eczema	35	14
Urticaria	9	3.6
Polymorphic light eruption	6	2.4
Tinea corporis	5	2
Systemic upus erythematosus	4	1.6
Fixed drug eruptions	3	1.2
Herpes zoster	3	1.2
Vitiligo	10	4
Pompholyx	5	2
Lichen planus	10	4
Miscellaneous	67	26.8

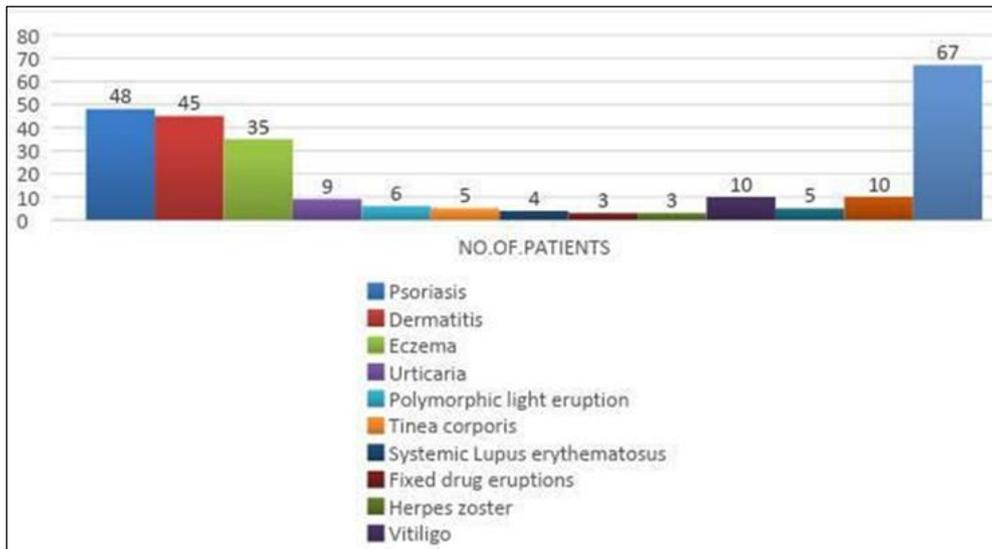


Fig 3: Disease Pattern among study subjects receiving corticosteroids

Number of Corticosteroids per Prescription: Out of 250 patients, one corticosteroid was prescribed for 91.2%, 2 for 8% whereas 3 drugs were prescribed less (0.8%).

Table 4: No. of corticosteroids per prescription in the study population

No. of Drugs Per Prescription	No. of Patients	Percentage (%)
Single corticosteroid	228	91.2
Two corticosteroids	20	8
Multiple corticosteroids	2	0.8

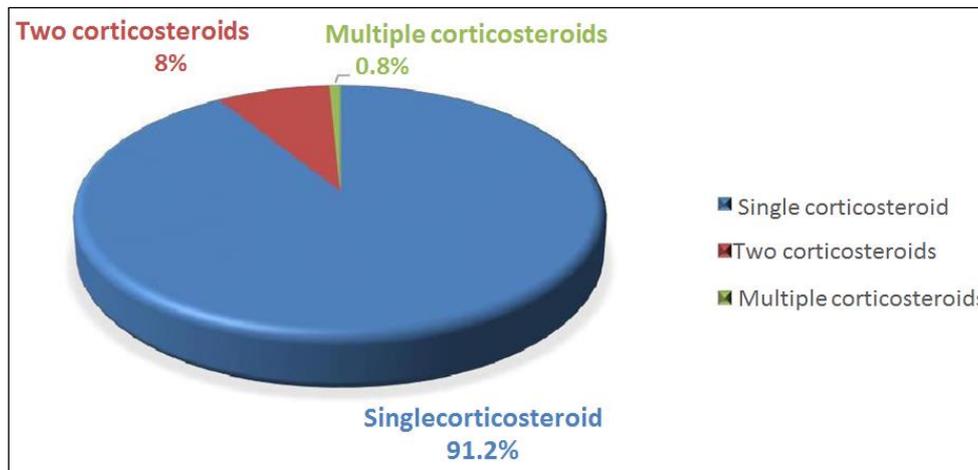


Fig 4: Number of corticosteroids per prescription

Pattern of Corticosteroid Prescribed for the Study Population: In our study out of 250 cases, 28.4% patients were prescribed with clobetasol, 16.8% with betamethasone followed by mometasone and halobetasol (13.2%).

Table 5: Pattern of corticosteroid prescribed for the study population

Drugs	No. of Patients	Percentage (%)
Clobetasol	71	28.4
Betamethasone	42	16.8
Mometasone	33	13.2
Halobetasol	33	13.2
Prednisolone	28	11.2
Fluticasone	22	8.8
Flucinolone	10	4
Dexamethasone	9	3.6
Triamcinolone acetonide	10	4
Desonide	5	2
Hydrocortisone acetate	5	2

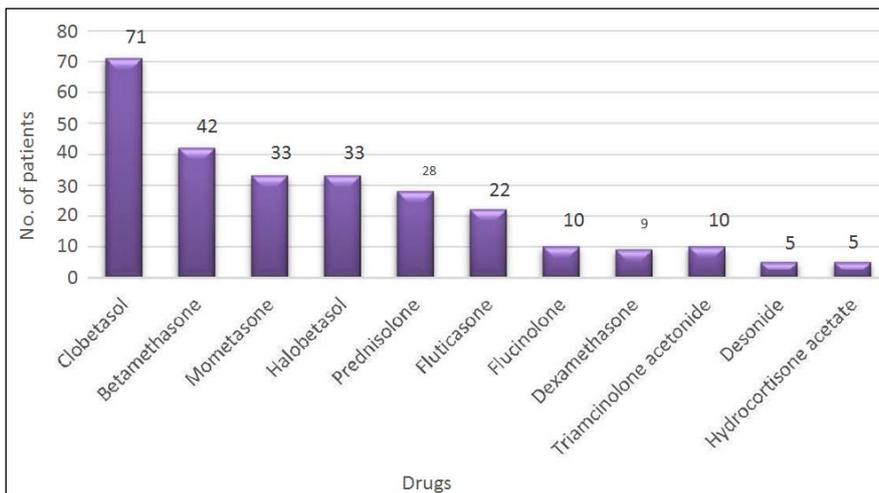


Fig 5: Pattern of corticosteroid prescribed for the study population

Potency of Corticosteroid Prescribed: In our study, potent corticosteroids were prescribed for 57.2%, followed by very potent (20.4%), mild (3.2%), moderate (28%). The potent corticosteroids are recommended for short term use only and required for areas like palms and soles, Low to moderate potent steroids are useful for acute inflammatory lesions in face and inter triginous areas and can be used for long term.

Table 6: Potency of corticosteroid prescribed

Potency	No. of Patients	Percentage (%)
Potent	143	57.2
Very potent	51	20.4
Mild	8	3.2
Moderately potent	70	28

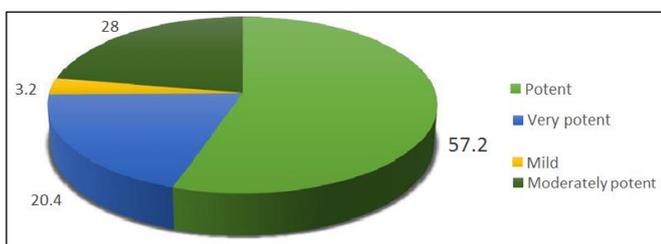


Fig 6: Potency of corticosteroid prescribed

Rationality of Corticosteroid Prescribed: In our study, rational use of corticosteroids were 203 (81.2%) out of 250 cases and Irrational were 47 (18.8%) out of 250 cases. Rationality is assessed based on generic names used in the prescription, missed frequency, missed dose, and appropriate drug use.

Table 7: Rationality of corticosteroid prescribed

Rationality	No. of Patients	Percentage (%)
Rational	203	81.2
Irrational	47	18.8

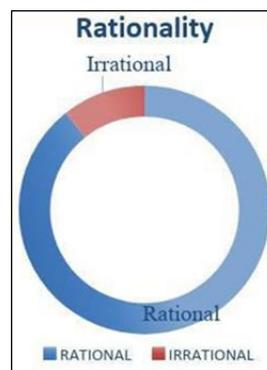


Fig 7: Rationality of corticosteroid prescribed

Route of Administration: In our study, topical corticosteroids were used majority 235 (94%), followed by oral of 37 (14.8%), and Parenteral 14 (5.6%).

Table 8: Route of Administration

Route	No. of Patients	Percentage (%)
Topical	235	94
Oral	37	14.8
Parenteral	14	5.6

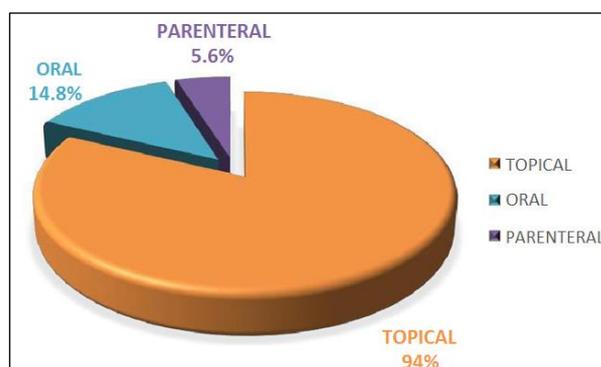


Fig 8: Route of administration

Side Effects Associated With Corticosteroids

In our study, out of 250 cases 87 (34.8%) side effects were observed, Most commonly found side effect was redness (14.9%) followed by irritation of skin and acne (12.6%).

Table 9: Side effects associated with corticosteroids

Side Effects	No. of Patients	Percentage (%)
Acne	11	12.6
Insomnia	4	4.6
Blistering	5	5.7
Tingling	6	6.9
Burning	5	5.7
Hair bumps	5	5.7
Stretch marks	8	9.2
Rash	7	8.0
Pimples	3	3.4
Dryness	6	6.9
Irritation	11	12.6
Redness	13	14.9
Peeling of skin	3	3.4

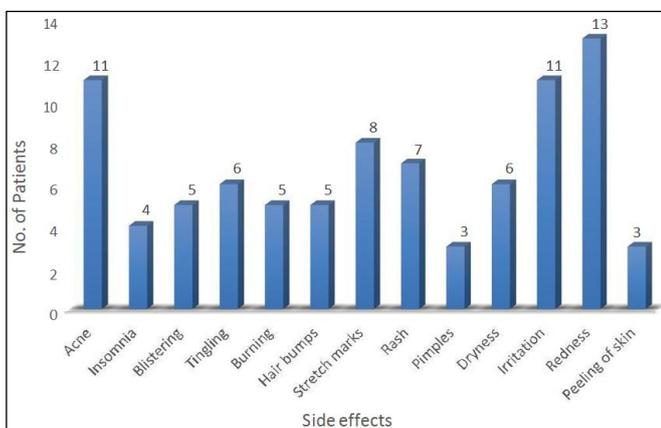


Fig 9: Side effects associated with corticosteroids

Conclusion

In present study corticosteroids were more prevalently used in younger and middle age group of female patients. The clobetasol and betamethasone were most frequently prescribed for the management of skin diseases. The single drug mode of therapy with corticosteroids was mostly preferred when compared with combinational therapy through topical and parenteral route of administration.

Corticosteroids are vital for clinical management of wide range of skin diseases and immunosuppressive actions, but it is mostly accompanied by skin irritations and complications. In the present study, the emollients were widely prescribed for prevention and healing of corticosteroids associated skin complications. Even though corticosteroids exhibit complications, they are still used as first line of therapy in skin diseases based on risk-benefit ratio.

In the present study, most of the prescription of corticosteroids was found to be rational. But there was a considerable percentage of irrationality also seen, so we have counseled and educated patients regarding the importance of rational use of corticosteroids. However to ensure safe, effective and well balanced therapeutic management of this corticosteroids, both patients and prescribers should be more aware of the appropriate dose, dosage regimen and overall indications. Drugs can be useful tools in the prevention and management of symptoms and disease, but if not used properly, they may be harmful and cause new symptoms or

produce sub optimal effects. The drug utilization problems are common and have significant clinical and economic complications. Hence the support and involvement of pharmacist along with medical staff is essential for rational drug utilization.

Acknowledgement

We thank Osmania University and also express our gratitude for having introduced Pharm. D course. We thank the University for extending the affiliation for carrying out our thesis work as part of partial fulfillment of our course. The program was a formative and an important experience for us. It's an immense pleasure for us to mark our incessant gratitude and the respect to our beloved guide Dr. S. Priyanka, MNR College of Pharmacy, for her valuable and unique guidance throughout the course of our thesis work.

It would be our pleasure to express sincere thanks to our respected Principal Dr. V. Alagarsamy, MNR College of Pharmacy for providing the necessary arrangements and support without which this work would not have attained this standard.

We are thankful to, Prof. P. Subhash Chandra Bose, Head of Department, a MNR College of Pharmacy for his constant support and guidance during our course work.

We would like to acknowledge and extend our heartfelt gratitude to our clinical guide Dr. B. Purnachandra, HOD, MNR Medical College and Hospital, for her valuable guidance throughout the course of our thesis work.

We express our sincere thanks to Dr. Srinu Naik, Board of Studies Chairman, Pharm.D; Prof. Kavitha Waghary, Dean Faculty of Pharmacy; Prof. R. Shyam Sundar; Principal University College of Technology and Prof. Ramesh kumar, Board of studies Chairman B Pharmacy.

Words are not sufficient to express our gratitude to owe our warmest and humble thanks to Sri M.N Raju Garu, Chairman of MNR Educational Trust for providing adequate facilities without which this work would not have attained this standard.

References

1. Sachdeva PD, Dr. Patel BG. Drug utilization Studies- Scope and Future perspectives. International Journal on Pharmaceutical and Biological Research. 2010; 1(1):11-17.
2. Swamy RM, Venkatesh G, Nagaraj HK. A prospective drug utilization evaluation of analgesics and pain assessment in postoperative urological patients in a Tertiary care hospital. Biomedical Research. 2010; 21(4):401-405.
3. Shahla Siddiqui, Kashif Hussein, Roshan Manasia *et al.* Impact of antibiotic restriction on broad spectrum antibiotic usage in the ICU of a developing country. JPMA. 2007; 57:484.
4. Sahar Al-Niemat I, Diana Bloukh T *et al.* Drug use evaluation of antibiotics prescribed in Jordanian hospital outpatient and emergency clinics using WHO prescribing indicators. Saudi Med J. 2001; 29(5):743-748.
5. Tripathi KD. Pharmacological Classification of drugs with doses and preparations: Fifth Edition, 44.
6. Purushotham K, Eesha BR. Prescription trend of topical corticosteroids in outpatient of dermatology in a tertiary care hospital in Tumakuru, Karnataka. IJPCS. 2016; 5(3):77-72.
7. Bhuvana Kolar Bylappa, Rajesh Patil T, Rathish Pillai T.

- Drug prescribing pattern of topical corticosteroids in dermatology unit of a tertiary care hospital. 2015; 4:1702-1707.
8. Vijay Kumar Lashman Lamani, Aruna Bhushan. Corticosteroids used in dermatology: its utilization and cost analysis study. *IJBCP*. 2016; 5:2:2184-9.
 9. Mahendra Kumar Jaiswal *et al.* Prescription Audit of corticosteroids in dermatology OPD of a tertiary care teaching hospital of tribal region of central south India. *IJBR*. 2017; 8(01):20-25.
 10. Merin Susan Abraham *et al.* Drug use evaluation of corticosteroids in dermatology department of a tertiary care teaching hospital at Palakkad, Kerala. *IJHSR*. 2016; 6(6):130-136.
 11. Pradeep Kumar Thakur *et al.* A prospective study on drug utilization evaluation of corticosteroids among outpatients of teaching hospital. *IJPTP*. 2015; 6(4); 2630-26-34.
 12. Sathyendra Kashyap JY, Cuckoo Aiyappa, Sumathy TK. Topical corticosteroid usage in dermatology OPD in a medical teaching hospital. *JPR*. 2013; 12(3):119-121.
 13. Monalisa Jena *et al.* Pattern of utilization of corticosteroids in department of dermatology at a tertiary care teaching hospital. *JCPR*. 2014; 6(8):86-91.
 14. Shatavisa Mukherjee *et al.* Assessment of corticosteroid utilization pattern among dermatology outpatients in a tertiary care teaching hospital in Eastern India. *IJGP*. 2016; 10(4):S178.
 15. Shakya Shrestha *et al.* Study on corticosteroids and its associated factors. *KUMJ*. 2015; 13(3):51.
 16. Rohini Gupta, Pavan Malhotra. Prescribing pattern of corticosteroids among dermatology inpatients in a tertiary care teaching hospital of North India, *NJPPP*. 2018; 8(2):158-162.
 17. Dr. Adhikari Karishma *et al.* Evaluation of prescription pattern of steroid in dermatology OPD of a Tertiary health care Institution and study of adverse effects with steroid use. *IJCR*. 2017; 9(03):48419-48422.
 18. Sushil Kumar *et al.* An analysis of Prescription pattern of Topical corticosteroid in dermatology OPD of a tertiary care teaching hospital in Western Maharashtra. *NJIRM*. 2018; 9(2):59-63.
 19. Mahindrakar MB, Dodda Rangaiah, Shivanand R. Topical corticosteroid prescription trends in dermatology outpatient unit of a tertiary care research institute hospital, South India. 2016; 2(1):8-11.
 20. Ashok Kumar M *et al.* A study on drug prescribing pattern and use of corticosteroids in dermatological conditions at a tertiary care teaching hospital, *IJPSR*. 2011; 9(2).
 21. Mirshad PV *et al.* Prescription audit of corticosteroid usage in the department of dermatology at a tertiary care teaching hospital. *IJBCP*. 2013; 2:411-3.
 22. Mahajabeen Madarkar *et al.* Pattern of prescribing practices of Topical corticosteroids in the outpatient dermatology department of tertiary care teaching hospital. *AJPCR*. 2015; 8(1):149-151.
 23. Rajan Nerurkar P *et al.* Study of prescribing pattern of topical corticosteroids in dermatology outpatients department in a tertiary care hospital in India. *IJBCP*. 2016; 5:2194-8.
 24. Wahane Pravin Kumar, Jagtap Rohini P, Ghongane Balasaheb. Evaluation of corticosteroid use pattern in steroid responsive dermatology conditions. *IJMRHS*. 2016; 5(1):82-86.
 25. Anjan Aryal *et al.* Study on steroid utilization in a tertiary care teaching hospital. *IJOPP*. 2017; 10(2).
 26. Pooja Bains. Topical corticosteroids abuse on face: A clinical study of 100 patients, *IJORD*. 2016; 2:40-5.
 27. Manju *et al.* Study of prescribing pattern of topical corticosteroids hospital in dermatology outpatient department in Pudu cherry. *IJPR*. 2018; 8(1):01-05.