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# A study of knowledge, attitude and practice of corticosteroid use among prescribers in a tertiary care centre in Maharashtra

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**Abstract**
**Introduction**: *Corticosteroids therapy is always associated with multiple drug interactions, adverse effects and super infections. Over the years, corticosteroids are apparently being abused by doctors and patients alike. With the increasing number of corticosteroids available for clinicians, there is need to understand the physician's knowledge, attitude, and practice of corticosteroid use.*
**Aim and Objectives**: *To study knowledge, attitude and practice among the practitioners towards the corticosteroid use.*
**Methods**: *This prospective, observational, cross-sectional study was carried out over a period of three months among the resident doctors at a tertiary care hospital. Resident doctors from the clinical departments who commonly prescribe corticosteroids in the hospital were included in the study.*
**Results:** *Total 70 residents completed the questionnaire. While prescribing the corticosteroids, 88.57% resident doctors gave instruction to their patients to avoid possible adverse effects and drug interactions. Though 94.28% doctors were aware about the different potencies of corticosteroids, only 34.28% were able to arrange them in descending order of their potency. 52.85% doctors were practicing alternate day therapy but only 38.57% were able to justify the alternate day therapy. 31.42% doctors use internet as a source of information while 37.14% refer books while 20% consult senior professional.*
**Discussion and Conclusion**: *Corticosteroid is a double- edged weapon. While getting maximum benefits and minimum adverse effects, doctors should be aware of their adverse effects, precautions, duration of treatment. Resident doctors are the first contact physician. Very few resident doctors have detail knowledge about the different potencies, adverse effects, measures to avoid these adverse effects. And there is a need to educate doctors about rational prescribing of corticosteroids.*
**Keywords:** *Drug interactions, adverse effects, potency, rational prescribing, corticosteroids.*

## Introduction

Corticosteroids are used widely, in different dosage forms, for prevention and treatment of several diseases worldwide.[1] They are considered inevitable for the management of chronic diseases, such as asthma and allergy or prevent rejection in case of organ transplants.[1], [2]. Inappropriate use of corticosteroids may lead to over or under treatment, worsening of conditions or eventually therapy failure.[3]

Due to striking and apparently curative effects of corticosteroids, physicians tend to routinely prescribe them to attract patients to their clinics.[4] This generally involves irrational use of corticosteroids in non-indicated disease conditions. During prolonged use of corticosteroids in pulmonary conditions, septic shock, chronic skin conditions, and rheumatoid arthritis[5]–[10], there is a need of judicious selection of dosage regimen and tapering of doses while ceasing the treatment.[11]

Steroid therapy is always associated with multiple drug interactions, adverse effects and super infections[12]. Over the years it has become increasingly apparent that corticosteroids are being abused by doctors & patients alike.[13]

With the increasing number and types of corticosteroids available to clinicians, there is a need to better understanding of current prescribing practices. Nash et al analyzed the medical malpractice of corticosteroids and concluded that the most common conditions for which steroids were prescribed were pain (23%), asthma or another pulmonary condition (20%), a dermatologic condition (18%), non-dermatologic autoimmune condition (17%), and allergies (6%).[14]

Physician's adherence to standard guidelines is critical in translating recommendations into improved outcomes. However, numerous obstacles in prescription guidelines are physician's attitude, lack of agreement, self-efficacy, outcome expectancy, inertia of previous practice and external barriers.[15]

Hence, present study was conducted to explore the knowledge, attitude and practice of prescribers towards corticosteroid use.

## Aim and Objectives

The present study was done with aim of studying knowledge, attitude and practice of corticosteroid use among prescribers. The secondary objective was to promote rational use of corticosteroids.

## Materials and Methods

It was a prospective, observational, cross-sectional study, conducted over a period of three months among the resident doctors at a tertiary care hospital in Maharashtra. The study was conducted after approval of institutional ethics committee. All the participants enrolled in the study were requested to fill up a structured, validated questionnaire.

Total 30 questions were included in questionnaire. First three questions were regarding name, age, specialty. Second part of questionnaire contained 10 questions to assess knowledge towards corticosteroids. Next part of questionnaire included 18 questions which assessed practice of the physicians. This part also included questions assessing attitude of prescribers towards corticosteroid use. The questionnaire content was based on published studies and modified to suit the responding population. The participants were approached over a period of 2 months after approval of ethics committee. The data was analysed for a period of one month.

**Inclusion Criteria**

Resident doctors from the departments of medicine, surgery, pediatrics, obstetrics and gynecology, anesthesia, ophthalmology, otorhinolaryngology, orthopedics and dermatology of a tertiary care centre who routinely prescribe corticosteroids.

**Exclusion Criteria**

Resident doctors from the departments who do not prescribe corticosteroids routinely, like psychiatry, radiology and non-clinical disciplines.

At the end of study, data was analyzed applying descriptive statistics using Microsoft excel.

## Results

Total 70 residents completed the survey. Out of these 70 residents, 66 (94.28%) were aware of essential drug list. 58 (82.85%) residents were prescribing drugs included in essential drug list. Most of the residents prescribed 2-5 corticosteroids per day. Data regarding the number of prescriptions per day is given in fig.1.

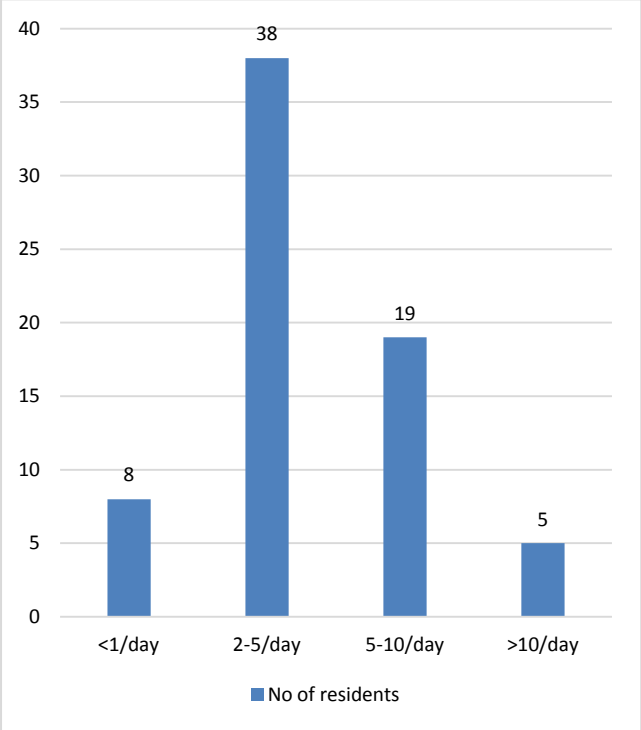


**Fig.1** Number of corticosteroid prescription per day

62 (88.57%) residents were giving instructions to the patients regarding the adverse effects of corticosteroids. 27 (38.57%) residents encountered corticophobia in their patients. 22 (31.42%) residents found that their patients were continuing corticosteroid without their advice.

Though 66 (94.28%) residents were aware of different potencies of corticosteroid only 24 (34.28%) were able to correctly arrange the corticosteroids according to descending order of their potency.

Frequently encountered adverse effects are given in fig. 2.

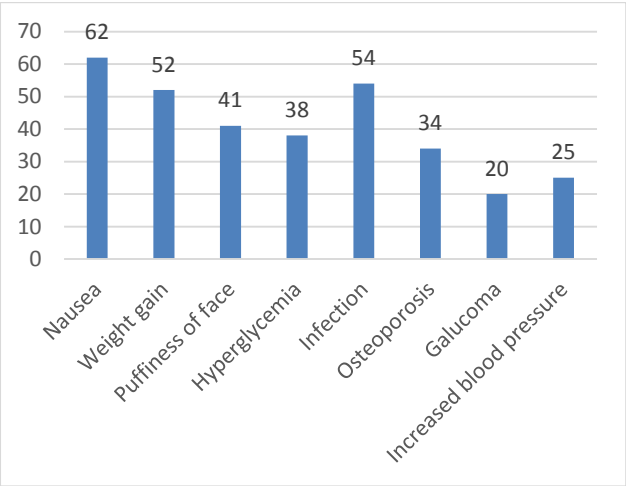


**Fig.2** Frequently encountered adverse effects

68 (97.14%) residents were aware of HPA axis suppression. Only 14 (20%) residents were able to tell correctly the dose and duration of corticosteroids therapy causing HPA axis suppression while 23 (32.85%) residents experienced HPA axis suppression in their patients.

37 (52.85%) residents were following tapering of doses while 28 (40%) residents were able to tell correctly the duration of treatment after which tapering of doses was required.

32 (45.71%) residents were following alternate day therapy, but only 27 (38.57%) residents were able to justify the alternate day corticosteroid therapy.

61 (87.14%) residents were aware of osteoporosis caused due to corticosteroids, but only 17 (24.28%) residents were knowing the correct dose and duration of corticosteroid therapy which can lead to osteoporosis. 54 (77.14%) residents were routinely prescribing calcium supplements to their patients.

Fig. 3 shows how frequently resident doctors were reviewing their corticosteroid prescription with their senior colleague.

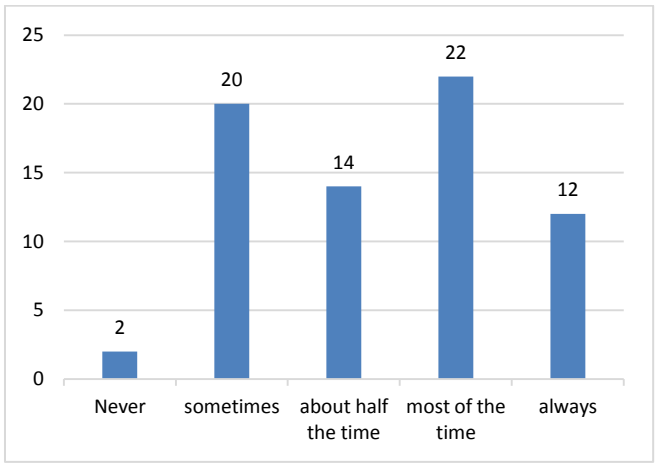


**Fig.3** Residents reviewing their corticosteroid prescription with senior colleague

Fig. 4 shows the sources of drug information resident doctors were using for the information regarding corticosteroids.

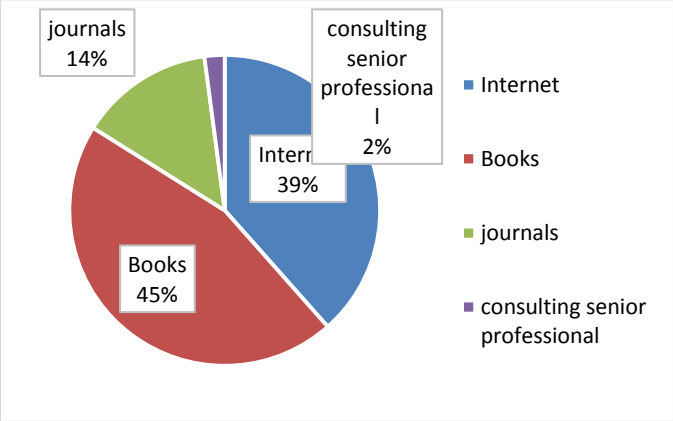


**Fig 4** Sources of information Regarding corticosteroid prescription

## Discussion

Corticosteroids are commonly used in the treatment of conditions like asthma, skin diseases and rheumatoid arthritis.[16]-[18]. Prolonged use of corticosteroids is associated with adverse effects such as sleep disturbances, lipodystrophy, HPA axis suppression, metabolic syndrome, weight gain, and hypertension.[19],[20]. Abrupt withdrawal of corticosteroids after a prolonged use may precipitate symptoms like fever, anorexia, psychosis, mood swings, and weight loss.[21]

In present study, knowledge, attitude and practice of the resident doctors was analyzed by requesting them to fill up validated questionnaire. In present study, resident doctors prescribed average 2-5 corticosteroids per day. A study conducted by Chaudhari et al, daily corticosteroid prescription was >3 per day.[22] 34.28% resident doctors in current study were able to arrange the different corticosteroids in descending order of their potency. In the study of Chaudhari et al only 25.25% physicians were able to arrange the corticosteroids in descending order of their potency.[22] A study conducted by Moghadam-Kia reported that the duration of glucocorticoid therapy and the glucocorticoid dose should be as low as possible, since even the low dose glucocorticoid therapy can decrease the bone mineral density.[23] In present study, 77.14% students were prescribing calcium supplements to their patients.

Though vast data is available for alternative day therapy, only 45.71% resident doctors were following the alternative day therapy. Weldon David has suggested that the corticosteroids have multiple effects on bone metabolisms, it disturbs bone growth and affect bone mineral density.[24] 77.14% residents were prescribing concurrent calcium supplements to their patients.

Tapering of corticosteroids is necessary after prolonged use.[22] In present study, 52.85% residents were following tapering of doses of corticosteroids. Only 40% residents were able to tell correctly the duration after which tapering of doses is necessary.

Many times, physicians prescribe the corticosteroid for their palliative effects and can attract the patients in subsequent visits. This leads to irrational prescription of corticosteroids. Some physicians prescribe corticosteroids in unindicated conditions.[22] A study conducted in this regard shows that there is considerable misuse of corticosteroids in non-indicated conditions like cough, obstructive lung diseases. Inhaled and systemic corticosteroids are associated with diabetes, hypertension, infection, pneumonia, glaucoma, adrenal insufficiency, myopathy, and cardiovascular events.[25]

The use of corticosteroids depends upon the experience of the physicians in their routine practice. There is a need to reconsider the way corticosteroids are prescribed. The present survey was aimed to explore the knowledge, attitude and practice of corticosteroid use among resident doctors. The survey was targeted to decide whether there is a need for updating the resident doctors about corticosteroids use.

## Conclusion

Corticosteroid is a double-edged weapon. While getting maximum benefits and avoiding adverse effects, doctors should be aware of adverse effects, precautions and duration of treatment of corticosteroids. Residents doctors are first contact physicians. The present study indicates that very few resident doctors have detail knowledge about the different potencies adverse effects, measures to avoid adverse effects. There is a need to educate resident doctors about rational prescribing of corticosteroids. They should be taught about the

uses, precautions, different potencies of corticosteroids and their dose dependent side effects by their seniors.

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