Introduction: Drugs play an important role in protecting, maintaining and restoring health. Prescription writing is a science and art, as it conveys the message from the prescriber to the patient. Irrational prescription of drugs is common in clinical practice. The patterns of drug use in a hospital setting need to be monitored intermittently in order to analyze their rationality and to offer
feedback and suggestions to drug prescribers so as to enable and effect suitable modifications in prescribing pattern to increase the therapeutic benefits and reduce adverse effects. According to World Health Organization (WHO), an adverse drug reaction (ADR) is defined as “a response to a drug which is noxious and unintended and which occurs at doses normally used in man for the prophylaxis, diagnosis or therapy for a disease and for the modification of function excluding failure to accomplish the intended purpose”. Adverse drug reactions are one of the major causes of morbidity and account for nearly 5% of all hospital admissions all over the world.

Systemic as well as topical corticosteroids have one of the wide spectrum of medical uses for their anti-inflammatory and immunosuppressive properties. They have the potential to cause dramatic improvement in many severe diseases as well as to produce equally dramatic adverse effects if not properly used. The use in nonendocrine diseases is empirical and palliative, but may be life saving.

By quantifying the morbidity associated with the use of corticosteroids, this study should help rationalize their long term use. Since no systematic study has been done so far to monitor ADRs of corticosteroids, the present study was conducted to monitor ADRs occurring during use of corticosteroids. Further, causality and severity assessment of ADRs, which reflects the association of the drug with the adverse effects, was done for confirmatory purposes. We wanted to know the frequency of ADR and were interested to find out whether new and/or life-threatening ADRs were reported. A great deal of work still needs to be done so that the pathogenesis of such adverse events can be clearly determined and effective therapeutic interventions devised.

To the best of our knowledge, less systematically analyzed data are available on the drug use pattern in corticosteroids. Hence, the present study was undertaken in patients under corticosteroid treatment for analyses of prescription pattern and adverse events.

2. MATERIALS AND METHODS

A prospective observational study was conducted at Basaveshwara Medical College Hospital & Research Centre, Chitradurga, Karnataka, India. The patients admitted in Medicine and Pediatric Departments of the hospital who were prescribed with corticosteroids during the study period were included the study. In the study population, patients were classified into four categories according to age group (≤20years, 21-40years, 41-60years and >60years). A data collection form that carries demographic details of the patients like age, sex, diagnosis, prescription pattern and scores of ADR assessing scales was prepared.

This study was approved by the “Institutional Human Ethical Committee” of the S.J.M College of Pharmacy, Chitradurga. (SJMCP/IEC/543B/2014-15 Date-13/10/2014). The data was entered in Microsoft Excel-2007 version and the results were analyzed using Statistical Package for Social Services (SPSS 19.0). Descriptive Method was used for analysis.

3. RESULTS

Data from a total of 110 patients were collected during the study period 59 were males and 51 females. Out of this, 52 were from >60years, 33 from 41-60years, 19 from 21-40years and 6 patients from ≤20years. In the study population, majority of patients had lower respiratory tract infection (LRTI) (20%) followed by anaemia, chronic obstructive pulmonary disease, asthma and many other diseases. Table 1 represents the percentage of diseases that were collected during the study period.

In the study population, a total of 140 corticosteroids were prescribed. Among those 51% were Budesonide, followed by Dexamethasone (27%) Hydrocortisone.
(17%), Prednisolone (3%) and Deflazacort(2%). In anaemic patients, Dexamethasone was prescribed mostly followed by Budesonide, and in asthma patients Budesonide was the most prescribed corticosteroid followed by Hydrocortisone. In COPD and LRTI majority were prescribed with Budesonide, followed by Hydrocortisone. Table 2 explains the diseases with the prescribed corticosteroids.

In the study population, 75% were prescribed with corticosteroid as monotherapy, 22% with two corticosteroids and remaining 3% with three corticosteroids, which is represented in Table 3.

During the study period, a total of six ADRs were observed in four patients. Out of them, two were Deflazacort induced edema in both legs & weight gain and remaining were Prednisolone induced eye pain, numbness in arms, increased appetite & Cushing’s syndrome. The results are presented in table 4.

The ADRs have been assessed for causality by using Naranjo’s probability scale and severity using Hartwig’s scale. In the documented ADRs, 1 was possible and 3 were in probable category. No definite and doubtful ADRs were observed. According to Hartwig’s scale, 1 was Mild and 3 were in Moderate category. No severe ADRs were observed. The results are summarized in table 5.

4. DISCUSSION

Prescription writing is a science and an art, as it conveys the message from the prescriber to the patient. Steroids are associated with numerous side effects that lead to increased patient morbidity and mortality. The incidence and economic aspects of steroid-related side effects have not been quantitatively assessed.

Previous studies showed that, common ADRs observed with inhaled steroids were Sore throat, Ddysguesia, Hoarseness of voice, Hyperpigmentation of face, Glossitis etc. As per the Naranjo’s scale, the total score for these ADRs with inhaled steroids ranged from 5 to 8, which fell in the ‘probable’ category. The major adverse effects of glucocorticoids on the cardiovascular system include dyslipidemia and hypertension.
cumulative incidence of fractures since the time of diagnosis was 23% for patients taking oral corticosteroids. They also reported a significant increase in cataracts.⁶

In the present study, we used the hospital case sheets for the analysis of prescription pattern, and collected the details of ADRs from the patient and their representatives. We conclude that, Budesonide was the most prescribed corticosteroid and the least prescribed was Deflazacort. A total of six ADRs were observed in four patients. Those were edema in legs, weight gain, Eye pain, Numbness in arms, Increased appetite and Cushing’s syndrome. As per the Naranjo’s scale, the total score for these ADRs ranged from 1 to 4 & 5 to 8, which fell in the ‘possible’ & ‘probable’ categories respectively and according to Hartwig’s severity scale, the ADRs were under ‘mild’ & ‘moderate’ categories.

5. CONCLUSION

This study provides the information regarding the prescription pattern of corticosteroids and the ADRs which can be caused due to the use of these drugs. In this study, the most prescribed corticosteroid was Budesonide and the ADRs found to be were edema in legs, weight gain, Eye pain, Numbness in arms, Increased appetite and Cushing’s syndrome. Unnecessary use of corticosteroids in patients may leads to decrease their quality of life and long term use will leads to more severe ADRs. Similar studies need to be conducted in more patients and for longer duration of time to establish these findings.

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6. REFERENCES


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