

The prevalence of steroid phobia and its correlates among the parents of asthmatic children

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Abstract

Asthma is chronic respiratory inflammatory disease with prevalence of 10-20% in children and 5-10% in adults. Main treatment of asthma constituted of inhaled corticosteroids (ICS) which can impede the progression of pathology in asthmatic patients. Potentially side effects of corticosteroids may prevent some patients from taking medication, which can increase exacerbation and severity of asthma. We aimed to investigate the prevalence and reasons of fear towards corticosteroids in asthma patients. In this cross-sectional study asthma patients viewpoint regarding inhaled and oral corticosteroids in the management of asthma was assessed using questionnaire. Exclusion criteria were the patients afflicted with chronic respiratory diseases other than asthma and the ones who were taking corticosteroids for other reasons. The data were analyzed using SPSS version 25. 50.7% of patients were male. The mean age of the subjects was 10.71 years and the mean duration of disease and treatment course were 3.2 and 2.2 years respectively. 75.4% of patients had regular follow-up. 56.6% did not know the mechanism of action of corticosteroids in asthma and 75.4% of patients had concerns regarding the adverse effects of corticosteroids. The most common concerns reported were drug dependency (14.9%) followed by osteoporosis (14.3%). 40.8% of patients claimed that they use corticosteroids with peace of mind if their physician prescribes them. 75% of patients had concerns regarding the adverse effects of corticosteroids and the most common concerns reported were drug dependency (14.9%).

Keywords: Asthma, adverse effect, corticosteroid.

1. Introduction

Asthma is one of the most prevalent chronic and noncommunicable diseases of children, the prevalence of which follows an increasing trend. The incidence of asthma is estimated to be 0.06% per year among children 13-14 years of age and 0.13% per year in the 6-7-year-old population. This disease is one the major public health concerns in a lot of countries worldwide and one

of the most important reasons for hospital admissions as well as emergency room referrals in pediatric patients (1-4). The treatment guideline of asthma has indicated that the main goal of treatment is to manage and control the disease (5). The treatment of asthma is constituted of daily use of controllers, and the use of short-acting bronchodilators for rapid alleviation of symptoms. Following the treatment protocol is essential for optimal control of the disease (6). Corticosteroids are the most effective anti-inflammatory agents available for the treatment of asthma, most of which act

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via inhibition of most steps of the inflammatory cascade (6). The advantages of corticosteroids include decreasing bronchial hyperresponsiveness, prevention of delayed response of asthma, and enhancement of pulmonary function. Inhaled corticosteroids (ICSs) can directly be delivered to the airways with minimal adverse effects. Moreover, the small absorbed portion of these agents is inactivated by the liver after its hepatic circulation which makes these medications more potent and with less adverse effects (8).

Noncompliance with treatment is associated with increased mortality rates, aggravated asthma signs and symptoms, increased direct and indirect costs, and decreased quality of life. In asthmatic patients, noncompliance with treatment due to poverty is estimated to be seen in less than 50% of pediatric patients and 30-70% of adult patients depending on the country, age, sex, and race, part of this noncompliance is attributed to the patients' or their guardians' worries about the safety of inhaled and oral corticosteroids. In fact, consumption of ICSs is associated with growth retardation in children and other systemic adverse effects such as the increased risk of pneumonia. Moreover, most ICSs need to be consumed twice a day which increases the risk of systemic adverse effects in comparison to ICSs consumed once daily (9).

Although studies have demonstrated that consumption of ICSs in children for the treatment of asthma is safe, noncompliance with ICS therapy of asthma is common and can cause further referrals to healthcare centers and continuous symptoms (10). Inappropriate fear of corticosteroid consumption in the treatment of asthma without a logical point of view regarding the issues around corticosteroids is the definition of steroid phobia.

These steroids have anti-inflammatory effects. Specialists who prescribe corticosteroids take the risks of corticosteroid consumption into account. On the other hand, the physicians who are fighting against long-term problems of medicine, confess the extraordinary results of corticosteroids in the treatment of asthma or enhancing the quality of life of asthmatic patients when other modalities of treatment have failed to do so (11).

A deep understanding of asthma's etiology and its management in patients and their par-

ents were associated with compliance to the treatment (regular consumption of corticosteroids), and decreased referrals, and informal medical planning in developed countries (10). Patients' incomplete knowledge about the nature of the disease and the anti-asthmatic medications, alongside with the fear of oral and inhaled corticosteroid adverse effects, have been associated with refusal of treatment (12). With the possible adverse effects of ICSs taken into consideration, and according to the fact that many patients refuse to take the treatment in fear of the medicines' side effects, which in turn can increase the severity and recurrence of asthma, we aimed to investigate the prevalence and underlying factors of fear of inhaled and oral corticosteroids in the patients referred to Allergy and Immunology clinics of Shiraz University of Medical Sciences. A better understanding of the underlying causes of such fear can help physicians ameliorate this fear and therefore, increase the compliance of patients, enhance their quality of life, and decrease their risk of mortality.

2. Methods and materials

211 children aged 2 months old To 18 Years old who were known cases of asthma were studied (they or their legal guardians were interviewed). This study followed a cross-sectional design in children younger than 18 years old and afflicted with bronchial asthma who were followed up after their first referral to Allergy and Immunology clinics of Shiraz University of Medical Sciences. Exclusion criteria of the subjects included patients with chronic respiratory diseases other than asthma or the ones who were taking corticosteroids for other reasons. In this study, the patients' opinion regarding the role of corticosteroids in the treatment of asthma was evaluated using a structured questionnaire. The questionnaire was utilized to collect data regarding socio-epidemiologic information of the patients, duration of the disease and its treatment, as well as demographic information, etiology of asthma, viewpoint regarding ICSs, fears, and worries regarding long-term and short-term treatment with steroids, and steroids' mechanism of action in asthma. After the completion of interviews, the patients' parents or legal guardians were advised to contact their doctor to gather in-

formation regarding the safety and importance of corticosteroids in the treatment of asthma. Written informed consent was obtained from each subject, and the study was approved by Shiraz University of Medical Sciences.

2. Statistical Analysis

Contents of the questionnaire were given to an expert team to be validated. To check the reliability and validity of the questionnaire, CVI, CVR, and Cronbach's alpha methods were utilized. Demographic data were reported as the frequency for qualitative variables and as mean for normally distributed quantitative variables and as the median for not normally distributed quantitative variables. To compare the multinomial qualitative variables, the chi-square test and Fischer's exact test were used. P-values less than 0.05 were considered significant. SPSS version 25 was used for statistical analyses of the data.

3. Results

In this study, 211 questionnaires were

filled (107 male patients and 104 female patients) (83 by patients themselves, 95 by patients' mother, 25 by patients' father, and 5 by patients' sister). Subjects had an average age of 10.7 years old and a duration of disease and treatment of 2.5 and 1.6 years respectively. Among the patients' parents, 25.5% were illiterate (N=54), 89 graduated elementary school, and others had graduated high school or higher education institutions.

75.4% of the patients reported that they visit their physicians regularly for follow-up. Most of the patients (56.6%) were unaware of the corticosteroids' mechanism of action against asthma. In our study, 75.4% of the patients had some concerns regarding the adverse effects of glucocorticoids. The most prevalent concern reported was drug dependency (14.98%) followed by osteoporosis (14.33%). The most reported problem of ICS therapy in asthma was the high cost of treatment.

The patients' answers to the questions asked during their interviews are as follows in table 1.

Table 1. The patients' answers to the questions asked in the interviews.

Question	I agree	I do not know	I disagree
1. Do you agree with consumption of ICS by your child?	42.7%	9.4%	47.9%
2. Inhaled corticosteroids have less adverse effects than oral and injected corticosteroids.	40.8%	30.8%	28.4%
3. Using corticosteroids can cause overweight in your child.	30.8%	42.7%	26.5%
4. Corticosteroid ointments can cause the skin to become thin when applied topically.	33.2%	41.2%	25.6%
5. The adverse effects of corticosteroids are irreversible.	33.2%	33.2%	33.6%
6. The advantages of corticosteroids outweigh their disadvantages.	35.5%	30.8%	33.7%
7. Corticosteroids can cause permanent hirsutism.	37.9%	40.8%	21.3%
8. Using corticosteroids is dangerous regardless of its dosage.	36.5%	31.7%	31.8%
9. Discontinuing the treatment with corticosteroids should happen gradually (they should be tapered) and must be under supervision of a physician.	62.1%	33.2%	4.7%
10. In case of affliction with diabetes mellitus, and prescription of corticosteroids, I should inform the physician.	48.3%	37.0%	14.7%
11. I have avoided corticosteroids by myself against the advice of the physician.	46.0%	00.0%	54.0%
12. Using corticosteroid ointments can cause to skin to become darker (hyperpigmentation).	37.0%	38.9%	24.1%
13. I use this drug with the peace of mind if my doctor prescribes it.	40.8%	36.9%	22.3%

4. Discussion

Asthma is one of the most prevalent chronic and noncommunicable diseases of children, the prevalence of which follows an increasing trend. The incidence of asthma is estimated to be 0.06% per year among children 13-14 years of age and 0.13% per year in the 6-7-year-old population. This disease is one the major public health concerns in a lot of countries worldwide and one of the most important reasons for hospital admissions as well as emergency room referrals in pediatric patients (1-4). Corticosteroids are the most effective anti-inflammatory agents available for the treatment of asthma, most of which act via inhibition of most steps of the inflammatory cascade (7). The advantages of corticosteroids include decreasing bronchial hyperresponsiveness, prevention of delayed response of asthma, and enhancement of pulmonary function. Inhaled corticosteroids (ICSs) can directly be delivered to the airways with minimal adverse effects. Moreover, the small absorbed portion of these agents is inactivated by the liver after its hepatic circulation which makes these medications more potent and with less adverse effects (8).

The treatment guideline of asthma has indicated that the main goal in the treatment of asthma is the management and control of the disease (5). The treatment of asthma is constituted of daily consumption of controller medications, as well as short-acting bronchodilators that are needed for immediate relief of symptoms. Appropriate compliance with treatment is needed for optimal results of treatment.

Irregular consumption of medications is associated with increased mortality, asthma symptoms, direct and indirect costs, and decreased quality of life. In asthmatic patients, the rate of non-compliance due to poverty is estimated to be less than 50% in pediatric patients and 30-70% in adult patients, depending on the country, age, sex, and race. This noncompliance is attributed to concerns about the safety of inhaled and oral corticosteroids by the patients and their guardians. In fact, consumption of ICSs has been associated with growth retardation in children, and other systemic adverse effects such as the increased risk of pneumonia. Moreover, most of ICSs need to be used twice daily which increases the risk of weakness,

in comparison to once daily consumption of these medications (9).

Inappropriate fear of corticosteroid consumption in the treatment of asthma without a logical point of view regarding the issues around corticosteroids is the definition of steroid phobia. On the other hand, the physicians who are fighting against long-term problems of medicine, confess the extraordinary results of corticosteroids in the treatment of asthma or enhancing the quality of life of asthmatic patients when other modalities of treatment have failed to do so (11).

A great part of the fear towards consumption of corticosteroids is due to the need for long-term treatment with these agents. Some studies have shown that using ICSs can affect the density of bones in a decreasing manner, and thus, impair the growth of children. Furthermore, other adverse effects such as adrenal gland suppression and glaucoma have been reported (13, 14).

In another study, after investigating the severity and the reasons for fear of parents from corticosteroids, the authors concluded that drug dependency, weight gain, impaired growth, toxicity, and hyperactivity were the most common reasons for fear. These concerns were associated with compliance to treatment.

In our study, 75.4% of the patients had concerns regarding the consumption of corticosteroids and their adverse effects. The most reported reasons of concern were drug dependency (14.98%) followed by osteoporosis (14.33%). In a study conducted to assess the relationship between fear of corticosteroids and asthma control in children 4 years of age or older in an outpatient pediatrics clinic, 34 parents (35%) reported a moderate to high fear of corticosteroids (12).

In another study performed to assess the understanding of patients of the role and adverse effects of ICSs, a large proportion of parents did not understand the role of these agents. This misconception and fear of corticosteroids had lead to decreased compliance with the treatment. Some of the most common concerns regarding the adverse effects of corticosteroids are disturbed body image, impaired bone density, and decreased effectiveness of the drug in time. More than half of the patients reported regular consumption of ICSs,

and two-thirds of the patients did not share their concerns regarding ICSs with their physicians or other healthcare workers (15).

In a study by Zadan et al, conducted to evaluate the asthmatic children's parents' fears and concerns of using ICSs, 100 asthmatic children's parents were interviewed using a structured questionnaire. Interestingly, 71% of the parents knew about the role of corticosteroids in the treatment of asthma, while more than half of them (53%) reported that they had fears of adverse effects (15).

Al-Jahdali et al performed a study to assess the patients' attributes and their association with noncompliance with ICS therapy. This prospective study constituted 334 asthmatic patients who were taking ICSs and were under a regular treatment plan in an outpatient pulmonology clinic. 38% of patients reported an irregular consumption of ICSs. Among the most common fears seen in the patients, fear of addiction (60%), and concerns regarding the corticosteroids' adverse effects (41%) could be mentioned (16).

Hachem et al conducted a study to evaluate the fear of topical corticosteroid application among the families of children afflicted with atopic dermatitis and to detect the contributing factors regarding the fear, using a standardized questionnaire. 81% of the subjects reported some levels of fear towards topical corticosteroids. The authors concluded that the phobia of topical corticosteroids among Italian families of children with atopic dermatitis is extensive. Fear of topical corticosteroids was associated with fear of excessive consumption of creams. Therefore, noncompliance to the treatment was a result of increased perceived fear; thus, educating the families about the treatment plan is of utmost importance (17).

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Alshamary et al investigated the reasons for fear towards corticosteroids in asthmatic children. They aimed to assess the level of corticosteroid phobia among the asthmatic patients' parents and measuring the effect of corticosteroids in the control of asthma in pediatric patients. 326 parents of asthmatic children were interviewed using a questionnaire. The study demonstrated that 84.54% of the parents had corticosteroid phobia. Most of the parents with phobia either decreased the dose of corticosteroids (49.7%) or completely stopped its consumption (22.5%). The authors concluded that there is a real fear of corticosteroid consumption. Various resources including healthcare workers are the main reason for fear seen in these parents. This study also showed that phobia has a significant association with compliance to treatment (18).

Other studies were in line with our study and illustrated that patients around the world do have a real fear of using corticosteroids (19).

5. Conclusion

75% of patients had concerns regarding the adverse effects of corticosteroids and the most common concern is drug dependency (14.9%). Educating patients in regards that corticosteroids are required in asthma management and prevent progress of disease is important and physicians should ensure patients that there are no significant adverse effects in routine doses. Moreover, the prevalence of steroid phobia shows the need for further communication between the physicians and the patients or their guardians.

Conflict of Interest

None declared.

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