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RESEARCH ARTICLE

CORTICOSTEROID PHOBIA AMONG PARENTS OF ASTHMATIC CHILDREN AND ITS IMPACT ON ASTHMA MANAGEMENT IN HAIL REGION.

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Abstract

Asthma is one of the most common chronic diseases of childhood. ICS are the cornerstone of asthma treatment in adults and children.
The aim of the study to detect and estimate the presence of phobia among parents of asthmatic children and to measure the impact of corticosteroid phobia on management and control of childhood asthma. 326 parents of asthmatic children were interviewed using structural questionnaire.
The study showed that 84.53% have phobia due to use corticosteroid and 14.92% haven't, and most of the parents who have corticosteroid phobia either minimized the prescribed dose of corticosteroid (49.7%) or completely stopped it (22.5%) which is significantly high when compared to those who have no phobia who minimize the dose of corticosteroid (23.5%) and those who completely stopped it (17.6%).
Conclusion: This study aims to state the presence of phobia towards corticosteroid use in the management of asthma among parents of asthmatic children and its effect on their treatment.
from the results It is clear that there is true fear of using corticosteroid. Multiple sources including medical staff are the main cause of parents' phobia towards corticosteroid use.
The study also showed that there is a significant impact of this phobia on the adherence to prescribed corticosteroid for treatment or control of bronchial asthma, as considerable number of parents stopped or minimized the dose due to their phobia.

Introduction: -

Asthma is a condition in which your airways narrow and swell and produce extra mucus. This can make breathing difficult and trigger coughing, wheezing and shortness of breath [(1)].

nestimate released in December 2016, there were 383 000 deaths due to asthma in 2015 and arou WHO have 235 Several factors have been known to precipitate asthma symptoms .million people currently suffer from asthma blockers, indoor -ysical exercise, aspirin and other NSAIDs, betaincluding cold air, extreme emotional arousal, ph

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allergens (house dust mites in bedding, carpets and stuffed furniture, pet dander), outdoor allergens (especially pollution molds and pollen), tobacco smoke, chemical irritants in the workplace and air[2].

Asthma is one of the most common chronic disorders in Saudi Arabia as more than 2 million Saudis suffer from asthma[3].

Poor knowledge, fear of the use of new drugs, and the lack of awareness of the importance of disease control are among primary care physicians who care for asthma patients in Saudi Arabi commonaIn addition to these important factors, there are other attributes to the magnitude of disease burdens such as socioeconomic status, number of and income. Consequently, many asthma patients continue to be underdiagnosed, ,siblings, knowledge of caregivers undertreated, and at risk of acute exacerbations resulting in missed work or school, increased use of expensive acute healthcare services, and reduced quality of life[4].

Kabbaa et al. found that only 39% of primary care physicians met the standards of the national -dy by AlA stu guidelines in management of asthma[5].

low (52%). Their proficiency in general ysicians wasph all level of awareness among In addition, the over and management was also low. An asthma control survey of ,edge, diagnosis, classification of severityknowl olled, and 64% werecontr patients showed that only 5% of the patients were controlled, 31% were partially uncontrolled[6].

an ion of school children aged between 8 and 16 years was studied usingpopulat otw of asthma in The prevalence 1995 internationally designed protocol in 1986 and[7].

inland desert are as with dry environment) and Jeddah versus) dh versus HailRiya data from Comparison of the of asthma in similar population increased revealed that the prevalence (zan (coastal humid environmentJa 1995 in 1986 to 23% in significantly from 8%[8].

moke and tobacco s study also revealed that there was increased exposure to environmental factors such as The which may have contributed ,indoor animals in Saudi houses. -et al. compared the prevalence of physician Bener -cross among Saudi school boys in the industrial city of Yanbu to two non industrial villages in a asthma diagnosed sectional study[9].

a respectively. Hijazi et al. conducted ,%8 e prevalences in industrial and nonindustrial are as were 13.9% andTh urban and 424 rural children aged 12 years They attempted to compare the prevalence of allergic 1020 of study with ing in urban and rural areas of the Saudi Arabia and investigate factors associatedsymptoms among those liv found y differencesan[10].

rural The prevalence of allergic symptoms was found to be significantly greater among urban children than the Saudi children-Saudi than non was more among ones and[11].

eye and skin symptoms. more had rtain respiratory symptoms and femalesMales were more susceptible to have ce influence the likelihood of having symptoms ccupation of the father did notand o educational level The[4].

Asthma can be effectively treated and most patients can achieve good control of their asthma. When asthma is under good control, patients can:
Avoid troublesome symptoms during day and night
Need little or no reliever medication
y active livesHave productive, physicall
Have normal or near normal lung function
(ups (exacerbations, or attacks-Avoid serious asthma flare[12].
In contrast, the 2016 Global Initiative for Asthma (GINA) guidelines categorize asthma severity as mild, moderate, or severe. Severity is assessed retrospectively from the level of treatment required to control symptoms and exacerbations, as follows:
Mild asthma: Well controlled with as-needed reliever medication alone or with low-intensity controller treatment such as low-dose inhaled corticosteroids (ICSs), leukotriene receptor antagonists, or chromones.

Moderate asthma: Well controlled with low-dose ICS/long-acting beta2-agonists (LABA)
Severe asthma: Requires high-dose ICS/LABA to prevent it from becoming uncontrolled, or asthma that remains uncontrolled despite this treatment [13].

The 2016 GINA guidelines include the following stepwise recommendations for medication and symptom control:
Step 1: As-needed SABA with no controller; other options are to consider low-dose ICS for patients with exacerbation risks.

Step 2: Regular low-dose ICS plus as-needed SABA; other options are LTRA or theophylline.

Step 3: Low-dose ICS/LABA plus as-needed SABA or ICS/formoterol maintenance and reliever therapy; other options are medium-dose ICS or low-dose ICS/LABA.

Step 4: Low-dose ICS/formoterol maintenance and reliever therapy or medium-dose ICS/LABA as maintenance plus as-needed SABA; add-on tiotropium for patients with history of exacerbations; other options are high-dose ICS/LTRA or slow-release theophylline; refer for expert assessment and advice.

Step 5: Refer for expert investigation and add-on treatment; add-on treatments include tiotropium by mist inhaler for patients with a history of exacerbations, omalizumab for severe allergic asthma, and mepolizumab for severe eosinophilic asthma; other options are that some patients may benefit from low-dose oral corticosteroids but long-term systemic adverse effects occur [14].

Inhaled corticosteroid(ICS):
Because of their clinical efficacy and anti- inflammatory properties, ICS are the cornerstone of asthma treatment in adults and children. They remain the most effective anti-inflammatory drugs for the treatment of persistent asthma. Since their introduction in the early 1970s, no other equally remain so for the foreseeable future. Treatment with ICS has decreased asthma mortality and morbidity [15].

In addition, treatment with ICS reduces symptoms, improves lung function, reduces the degree of bronchial hyperresponsiveness (BHR) and reduces the number of exacerbations. ICS treatment improves the burden of asthma by decreasing the number of nocturnal awakenings due to respiratory symptoms, by reducing school absence and, especially valuable for children, by helping to enable participation in sports and other social activities [16].
Adherence to therapy and therapy convenience are key to the successful pharmacological management of asthma, particularly in children [17].

The mechanisms of steroid resistance in these individuals are poorly understood but are thought to include abnormalities in glucocorticoid receptor function, corticosteroid pharmacokinetics, or transcription factor protein activity [18].

There is a range of local side effects that includes perioral dermatitis, tongue hypertrophy, oral and oropharyngeal candidiasis, pharyngeal inflammation, laryngeal disorders, cough during inhalation, and a sensation of thirst [19].
Systemic side effects are dose-dependent, and obvious differences exist between ICSs in their ability to cause systemic glucocorticoid activity. Problems include the following: calcium and phosphate metabolism with subsequent risk of osteoporosis; adrenocortical suppression; bruising and skin thinning; posterior subcapsular cataracts; and glaucoma [19].

Systemic corticosteroids have been shown to improve outcome in hospitalized children with acute asthma, including earlier discharge and fewer relapses. Early use of systemic corticosteroid therapy in acute exacerbations of asthma in adults and children, reduces hospital admissions and also prevents relapse in the emergency department setting [20].
Oral corticosteroids for children: 0–5 years.

Few clinical trials have assessed the effectiveness of oral corticosteroids for managing flare-ups of wheezing in preschool children, and there is very little evidence about their effects in children who are not being treated in hospitals or emergency departments.

Short courses of oral corticosteroids initiated by parents in response to the onset of wheezing symptoms do not appear to reduce the need for hospitalization or treatment in the emergency department for preschool children.

For children age 1–5 years with wheezing due to a respiratory tract virus such as the common cold, a short course of oral prednisolone does not reduce the severity of symptoms.

Oral corticosteroids for children: 6 years and over.
A short course of oral corticosteroid may be helpful in gaining rapid asthma control, with a low risk of additional systemic adverse effects.

Rarely, long-term systemic corticosteroids may be needed for children with severe persistent asthma that is poorly controlled despite high-dose inhaled corticosteroids and long-acting beta2 agonists. However, significant adverse effects may occur due to recurrent or long-term systemic corticosteroids [(21)].

Phobia denotes an extreme aversion, avoidance and fear. One of the basic tenets of the concept of phobia is the fear is irrational leading to a deliberate avoidance of the item producing it, and the condition leads to gross socio-occupational dysfunction. That the fear is irrational is sometimes even acknowledged by the patient himself but when exposed to it, he cannot help avoiding it [(22)].

CS fear and CM usage are prevalent. Parents with CS fear were more likely to have children with poorer asthma control and have used Chinese medicine. Physicians caring for children with asthma should be aware of parents with CS fear, prepared to address the fear or concerns and offer evidence-based alternative treatment [(23)].

Research objective: -
To detect and estimate the presence of phobia among parents of asthmatic children.
To measure the impact of corticosteroid phobia on management and control of childhood asthma.

Research Methodology: -
This is a cross-sectional community and hospital-based study done in the period of two months (January – February)2018.
326 Parents of asthmatic children aged 0–15 years were included in the study.

Inclusion criteria: -
Parents of children diagnosed as bronchial asthma patients(GINA).

Exclusion criteria: -
Children with chronic respiratory illness other than asthma and corticosteroid treatment for other reasons.

We use two forms of a structured questionnaire electronic and papers. It is designed to measure the percentage of the presence of corticosteroid phobia and its effect on asthma management. The questionnaire included some patient's demographic data as well as information for asthma duration, admission to hospital, drugs uses for asthma treatment and questions regarding: corticosteroids fear, causes of fear, sources of fear, and result of fear on treatment.

Upon completing the interview, parents were advised to contact with clinicians for further education and assurance about importance and safety of corticosteroid in asthma treatment. Implied consent was obtained from all parents.

Data analysis:-
Data will be analyzed by the computer using SPSS VERSION 22**.**

Results:-

Table 1: -Participants demographics.

Classification		N	%
Relative relation	Father	64	19.6
	Mother	262	80.4
	Total	326	100.0

Place of residence	Hail	290	89.0
	Governorates of Hail	12	3.7
	Hail villages	24	7.4
	Total	326	100.0
Level of education	Uneducated	6	1.8
	Elementary	17	5.2
	Intermediate	25	7.7
	Secondary	57	17.5
	University and above	221	67.8
	Total	326	100%

Relative relation: 80.4% of the participants are Mothers and 19.6% fathers.
Place of residence: in the same table we find 89.0% lives in Hail city, 7.4% in Hail villages and 3.7% in Governorates of Hail.

Level of education: Table 1 shows that the Level of education of 67.8 % of the participants is university or above 17.5 % secondary, 7.7% (intermediate),5.21% Elementary and 1.84% are uneducated.

Table 2: -how many of your children do they have asthma?

	Frequency	Percent
One	239	73.3
Two	60	18.4
More than Two	27	8.3
Total	326	100.0

Table 2 shows that 73.3% of the participants have one asthmatic child, 18.4% have two children and 8.3% have more than two children who have asthma.

Table 3: -Age of the children with asthma whom parents are included in the study:

	Frequency	Percent
From birth to1Year	31.0	7.83%
>1 to 5Years	126.0	31.82%
>5Years	239.0	60.35%
Total	396.0	100.00%

Table 3 shows that the age of 60.35% of the included children is above 5 years, 31.82% is between 1 and 5years while 7.83% are below one year.

Table 4: -age of the child when he/she has been diagnosed as having bronchial asthma?

Diagnosis	Frequency	Percent
Infancy	164	50.31%
Preschool	105	32.21%
School-age	57	17.48%
Total	326	100.0%

Table 4 shows 50.31% of the patients has been diagnosed with asthma since Infancy, 32.21% during Preschool age and 17.48% during school age.

Table 5: -Has your child been hospitalized by an asthma attack?

	Frequency	Percent
Yes	167	51.2
No	159	48.8
Total	326	100.0

Table 5 shows 51.2% of the included patients has been hospitalized by an asthma attack.

Table 6:- Number of hospitalization		
Number of hospitalizes	Frequency	Percent
1 - 4 times	89	54.60%
5 or more times	74	45.40%
Total	163	100.0%

Table 6 shows that 54.6% of those who have been hospitalized are hospitalized 1 to 4 times, while 45.4% are hospitalized 5 times or more.

Table 7: -What medications do the child take at the time of the questionnaire?

Medication	Frequency	Percent
Bronchodilator	221	67.79%
Cortisone	69	21.17%
Traditional medicines	13	3.99%
Nothing	23	7.06%
Total	326	100.0

Table 7 shows 67.79% of patients take bronchodilator, 21.17% take cortisone, 3.99% use Traditional medicines and 7.06% are not using any medication.

Table 8: -Do you know what is cortisone?

	Frequency	Percent
Yes	217	66.56%
No	109	33.44%
Total	326	100.0

Table 8 shows 66.56% of sample know cortisone and 33.44% don't know cortisone

Table 9:-Did you know that the cortisone is used to treat asthma?

	Frequency	Percent
Yes	238	73.01%
No	88	26.99%
Total	326	100.0

Table 9 shows 73.01% of the included parents know that cortisone is used to treat asthma and 26.99% don't know.

Table 10: -Has cortisone been prescribed before by a doctor to relieve asthma attacks for your child?

	Frequency	Percent
Yes	220	67.48%
No	106	32.52%
Total	326	100.0

Table 10 shows 67.48% of children Has cortisone been prescribed by a doctor to relieve asthma attacks before and 32.52% don't have.

Table 11: -Have doctor ever explained usefulness, uses or side effects of cortisone to you?

	Frequency	Percent
Yes	87	39.55%
No	62	28.18%
He has clarified insufficiently	71	32.27%
Total	220	100%

Table 11 shows 39.55% had got sufficiently explanation by the doctor about cortisone 28.18% hadn't got and 32.27% had got but insufficiently.

Table 12:- Do you worry about using cortisone for your child?

	Frequency	Percent
Yes	183	84.53%
No	37	14.92%

Table 12 shows 84.53% have worry due to use cortisone and 14.92% haven't

		Relative relation				**Total**
		Father		**Mother**		
		N	**%**	**N**	**%**	
do you worry about using cortisone for your child	**Yes**	30	75.00%	153	84.53%	183
	No	10	25.00%	27	14.92%	37
Total		40	100.0%	181	100.0%	220

Table 13: -What is the cause of worry?

	Frequency	Percent
Side effects	123	51.46%
Child habituation	91	38.08%
Not effective	11	4.60%
Increase the severity of the disease	14	5.86%
Total	239	100.0%

Table 13 shows that the Side effects form 51.46% of reasons concern, Child habituation 38.08%, Not effective 4.6% and Increase the severity of the disease 5.86%

Table 14:-What is the source of worry?

	Frequency	Percent
Social Media	84	43.52%
Medical staff (doctor, nurse, etc.)	33	17.10%
Family member	56	29.02%
Others	20	10.36%
Total	193	100%

Table 14 shows that the Social Media form 43.52% of sources of concern, Family member 29.02% and a Medical staff in 17.1% of the included parents.

Table 15: -What is the result of being worried?

Do you worry about using cortisone for your child?				
		What is the result of worried?	Frequency	Percent
Do you worry about using cortisone for your child?	Yes	Continue the same dosage	48	27.7%
		Minimize the dose	86	49.7%
		Cut the medicine permanently	39	22.5%
		Total	**173**	**100.0%**
	No	Continue the same dosage	10	58.8%
		Minimize the dose	4	23.5%
		Cut the medicine permanently	3	17.6%
		Total	**17**	**100.0%**

Discussion:-

The aim of this study is to estimate the presence of corticosteroid phobia among parents of children (age 0 – 15 years) who suffer from bronchial asthma. The study included 326 parents (80.4% mothers and 19.6% fathers), the majority of them are from Hail city (89%) others are from Governorates of Hail or Hail villages. Most of the parents are highly educated up to university or above (67.8%), and only (1.8%) of the parents are uneducated, comparing to other study done in Egypt which includes 100 parents only, 65/35 to Male/Female with educational levels ranging from Illiterate (35%) Primary school (48%) and High school (17%). They included children with bronchial asthma whose age between 6 – 15 years [24].

73.3% of the parents included in the study have only one child with bronchial asthma, while the rest (26.7%) have more than one affected child.

Bronchial asthma diagnosed during infancy in 7.83% of the included children, 31.82% for the children between 1- 5 years, and 60.35% for the children above 5 years, which also mean that 50.31% of the patients are infants, 32.21% at preschool age, 17.48% are at school age.

The percentage of asthmatic children who have been hospitalized by an asthma attack among the included patients is 51.2%, 54.6% of them have been hospitalized less than 5 times, while 45.4% have more frequent hospitalization with bronchial asthma attack 5 times or more. On compare with Tracy study the 545 parents of eligible cases, 508 (93%) completed interviews (133 had hospitalization and 375 had ED visits) [25].

At the time of the study 67.79% of the included children are on inhaled bronchodilator (Ventolin), 21.17% are on inhaled corticosteroid and the rest are either on no treatment or they use traditional medications to treat their bronchial asthma. These findings are in disagreement with study done in Egypt who identified Oral steroids were considered by interviewed parents as the most frequent used drug (23%) in contrary with 7% ICS, followed by bronchodilators (16%). Whereas 25% of interviewed parents did not know any type of medicines [24].

(66.56%) know what cortisone is and 33.44%don't know. Mostly (73.01%) they are oriented about the role of cortisone in treatment of asthma This is similar to the result in study done in Egypt which showed that orientation of the interviewed parents about the role of steroids in asthma was obvious in 71% [24].

26.99% doesn't oriented about the role of cortisone in treatment of asthma. Cortisone had been prescribed for more than two thirds of the included children (67.48%) and whom not (32.52%), 39.5% got full explanation about cortisone's use and side effect and 28.18% didn't get any knowledge from their physicians and 32.2% haven't been educated sufficiently. This is similar to the result in study done in Egypt which showed that orientation of the interviewed parents about the role of steroids in asthma was obvious in 71%[24].

The majority of the included parents –fathers and mothers- who have asthmatic children for whom cortisone is prescribed are worried about using it for their children (*84.53%*). That means they have phobia towards using corticosteroid for the treatment or control of their children bronchial asthma.
Most of them worry about the related side effects (*51.46%*) or child habituation, that it will be difficult to wean the child from it (*38.08%*), others think that it is not effective or it might increase the severity of the disease. These findings are somewhat similar to what found by a study done in Egypt in which fear of steroid side effects was the strongest theme to emerge (53%); followed by addiction (9%), weight gain (6%) and growth retardation (1%) also difficulties for ICS use that were mentioned by our participants (46%) [24].

Also, Boulet [26] reported that fears and misconceptions about inhaled corticosteroids are quite frequent among the asthmatic population, the two most common being about untoward side effects and a reduction in efficacy with time. The study showed that the main source of worry and concern among the included parents is the social media (*43.52%*), family members or relatives (*29.02%*) and medical staff including doctors (*17.10%*).

This indicates that corticosteroid phobia is significantly present among the general population and also among medical staff.

The study showed that most of the parents who have corticosteroid phobia either minimized the prescribed dose of corticosteroid (49.7%%) or completely stopped it (22.5%) total of *84.53%*, which is significantly high when

compared to those who have no phobia towards corticosteroid use in bronchial asthma 23.5% minimized the prescribed dose of corticosteroid and 17.6% completely stopped it (total 14.92%).

This means that the phobia towards corticosteroid significantly affecting the management of children with bronchial asthma and might be reflected on the control of their disease as adherence to medications is one of the important factors that affect childhood bronchial asthma control.

Conclusion:-

This study aims to state the presence of phobia towards corticosteroid use in the management of asthma among parents of asthmatic children and its effect on their treatment.

from the results It is clear that there is true fear of using corticosteroid. Multiple sources including medical staff are the main cause of parents' phobia towards corticosteroid use.

The study also showed that there is a significant impact of this phobia on the adherence to prescribed corticosteroid for treatment or control of bronchial asthma, as considerable number of parents stopped or minimized the dose due to their phobia.

Recommendations:-

We recommend firstly to increase health care providers' awareness about delivering effective information to the parents of children with bronchial asthma and to increase the parent's knowledge about treatment plan in their routine sessions.

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