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Comparison of inhalant Fluticasone and Beclomethasone in treating mild and moderate persistent asthma in children

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ABSTRACT

Asthma is one of the most common diseases of childhood ages. Different medications are used in periods between asthma attacks that their principles are inhalant corticosteroids such as beclomethasone and fluticasone. using fluticasone alone, can cause diminish in asthma symptoms in children and also decrease treatment failures resulting from using medicines such as beclomethasone and also reduces the corticosteroid therapy complications. So we decided to preform a research to compare the effectiveness of beclomethasone and fluticasone. This study is a retrospective clinical trial on asthmatic patients refer to Tabriz Alinasab hospital from 2008 to 2010. All patients with mild and moderate persistent asthma were included by their physical examination and medical records at first visit and, if necessary, peak flowmetry and spirometry was done specially in patients elder than eight and with more compliance. Follow ups were done by recording the outcomes at weekly visits and writing down questionnaires according to parents' opinions about patients condition and satisfaction. There was not a meaningful relationship between age (p=0.393), sex (p=1) and studied groups (p=0.15). There was a meaningful relationship between asthma and response to medication, and also asthma stages (mild or moderate) and kind of used medications. In patients with persistent mild asthma co medication with both beclomethasone and fluticasone was without any failure, but in moderate persistent asthma with single medication therapy, fluticasone had less failure than beclomethasone, and in co medication, salmeterol with fluticasone had no failures but with beclomethasone, some failures reported. Medication with fluticasone in mild persistent asthma and along with salmeterol in moderate persistent asthma is more effective in patient's response to medication and reducing complications.

Key words: asthma, children, Beclomethasone, fluticasone.

INTRODUCTION

Asthma is one of the most common childhood diseases [3]. This disease appears with inflammation of the airways and reversible periods of bronchi's contraction [1] and cells and many inflammatory mediators involved in its creation. About 4.8 million people worldwide are diagnosed with asthma. Chronic asthma causes reduction in Children's activities. In addition, nowadays it made the problematic and important issue, especially for school-aged children [3].

Asthma is divided into four categories [4, 5]:
1. Mild intermittent asthma
2. Mild persistent asthma
3. Moderate persistent asthma
4. Severe asthma

In chronic cases such as mild persistent asthma, daily symptoms occur for about 2 days per week and nighttime symptoms occur more than once in a week.

Therefore causes dysfunction in children and during school-age increase the number of school Absences. In such circumstances, to prevent attacks, person needs long-term use of medications. Long-term use of medicines in chronic diseases is often encountered with patient's negative reactions. In addition, perhaps, the patient decides about cessation of the using medicine without doctor's discretion that, in some cases leads to severe damages to the patient. This issue has been more acute in children and in these cases, parent's reaction is more severe and unpredictable because parents think that their child is ill and desperate .They blames themselves allot and suffer by sadness. When using the spray, Spacer and a variety of same devices is proposed, the problem is more unfortunate and unacceptable for parents.

Many medicines are used to treat asthma. One of them, which is the most effective, and in most case this one is used, is Inhalant Gluco-corticosteroids group [6, 7, 25, 28].

Inhalant corticosteroids, which are used for this purpose, include Beclomethasone Propionate, Fluticasone Dypropionate and budesonide [1]. Also sometimes, in children older than 5 years, short- acting or long-acting Inhalant Bronchodilators, Theophylline or Cromolyn in combination with Corticosteroids are used [9].

Clinical experience and performed researches have shown that usually the second medicine is needed coincided with prescription of Beclomethasone. It means perforce in many cases to prevent attacks repetition, it is necessary to prescribe second medicine such as inhalant bronchodilators [2, 29]. While, the claim is that Fluticasone itself, can solve the problem.

Despite the significant positive effects of inhalant corticosteroids in children, some risks also threaten them. One of these risks is, delay in height growth [25] and functional impairment of adrenal gland [19]. In other studies it has been shown that the suppression of adrenal gland by fluticasone was relatively common [18]. So in terms of clinical experience the inhalant fluticasone propionate In comparison with Beclomethasone Dypropionate has more

positive and fewer adverse effects. On the other hand, successful treatment with a medicine is in the terms of priority and importance while it can reduce the cost of psychological treatment and at the same time, it is psychologically promising for children and families. In addition, Complications of medicines are prevented.

Hence can fluticasone be considered as essential medicine or not? In this study we have discuss about this issue.

MATERIALS AND METHODS

It was a retrospective study. The study population in this research is children who have been diagnosed with mild persistent asthma and moderate persistent asthma that required treatment from early 2009 until late 2010. In this study, patients with severe persistent asthma and patients who regularly visit for control are not considered. For obtaining required information, following instruments were used:

1) Taking memoir (physical examination and history) at admission.
2) Record of Examination results in the weekly visits.
3) Questionnaires Preparation from the patient and parent.
4) recording of parent‘s comment about the condition of the patient and satisfaction with treatment.

Examined Variables in this study were the following:
age, gender, group, mild persistent asthma, moderate persistent asthma, respond to the treatment, prescribing Fluticasone, prescribing Beclomethasone, prescribing Fluticasone and Salmeterol, prescribing Beclomethasone and salmeterol, treatment results after supplementary examination.

When diagnosis in these children was determined, primarily moral issue due to process was fully explained to parents. In addition, disease and treatment protocol and tracking system was described And it was emphasized that non of medicines are new or not experienced also all of them are medicines which have been proposed in valid medical references on asthma therapy. After parental approval, a complete patient’s history and required physical examination was provided. In addition, depending on patient age and cooperation, peak flow meter and Spirometry were conducted and then the results have been published in the patient’s records. We also trained parents how to use medicines and how to visit for the control.

Examined children were divided into 3 groups of 30 persons.
1) First group are patients in whom treatment only Beclomethasone has been used.
2) Second group are patients who were treated only by the use of fluticasone.
3) Third group are only patients with persistent moderate asthma, which in their treatment, half were treated with fluticasone plus salmeterol and the other half were treated with fluticasone plus salmeterol.

Tracking and assessing therapy results were performed in two ways:
a) Clinical examination and the patient's general condition:
1) If the patient's dyspnea (shortness of breath) is disappeared.

2) If coughing is resolved.
3) Back to play and everyday activities normally
4) Check disappearing of Retraction
5) Examination of the lung and checking, if the whizzes are disappeared.
6) Pulse oximetry

b) On children who were able to cooperate:
1) Peak flowmeter to determine FEV1
2) Spirometry from children older than 8 years

Statistical Analysis:
To describe qualitative data, percentage and to describe quantitative data, central and distribution parameters were calculated. The relationship between the quantitative data was analyzed by using the student T test and the relationship between the qualitative data was analyzed by using the chi square test and the value of $p<0.05$ was considered meaningful .Data analysis was performed using SPSS statistical software version 16.

RESULTS

Gender and age group and type of asthma results are as follows and presented in the tables and Figures 1&2.

Table 1. Group's frequency breakdown to mild and moderate asthma

			Group				Total
			Beclomethasone	**Fluticasone**	**Beclomethasone plus Salmeterol**	**Fluticasone plus Salmeterol**	
Asthma	**Moderate persistent asthma**	Count	13	11	12	13	49
		Expected Count	16.1	15.4	8.4	9.1	49.0
		Within group (%)	56.5%	50.0%	100.0%	100.0%	70.0%
	Mild persistent asthma	Count	10	11	0	0	21
		Expected Count	6.9	6.6	3.6	3.9	21.0
		Within group (%)	43.5%	50.0%	.0%	.0%	30.0%
Total		Count	23	22	12	13	70
		Expected Count	23.0	22.0	12.0	13.0	70.0
		Within group (%)	100.0%	100.0%	100.0%	100.0%	100.0%

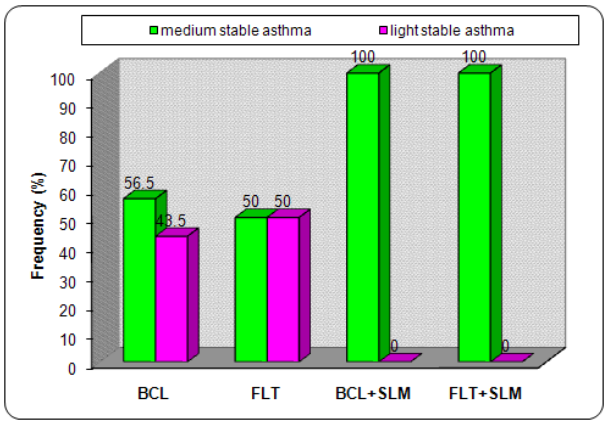

Figure 1. Group's frequency breakdown to mild and moderate asthma

Table 2. Group's frequency breakdown to age

			Group				Total
			Beclomethasone	Fluticasone	Beclomethasone plus Salmeterol	Fluticasone plus Salmeterol	
age	4-8 years old	Count	17	19	9	11	56
		Expected Count	18.4	17.6	9.6	10.4	56.0
		Within group (%)	73.9%	86.4%	75.0%	84.6%	80.0%
	9-12 years old	Count	6	3	3	2	14
		Expected Count	4.6	4.4	2.4	2.6	14.0
		Within group (%)	26.1%	13.6%	25.0%	15.4%	20.0%
Total		Count	23	22	12	13	70
		Expected Count	23.0	22.0	12.0	13.0	70.0
		Within group (%)	100.0%	100.0%	100.0%	100.0%	100.0%

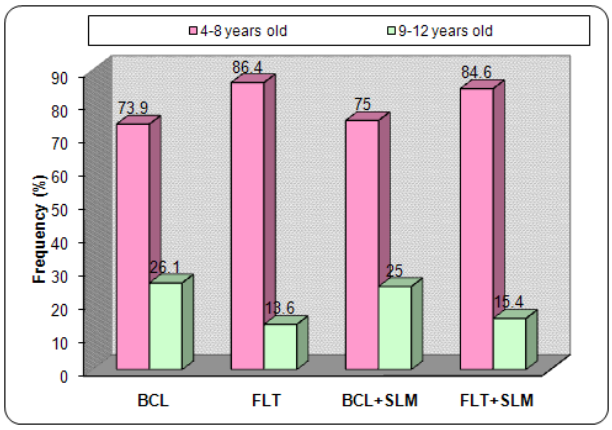

Figure 2. Group's frequency breakdown to age

Group 1:

30 children who were aged 4 to 12 that 11 are girls and 19 are boys. 8 girl patients and 13 boy patients are aged between 4 to 8 years and the remaining three

girls and six boys are between ages, 9 to 12 years. From eight girls who are aged 4 to 8, three patients have mild persistent asthma and five patients have Moderate persistent asthma.

From 13 boys who are aged 4 to 8, six patients have mild persistent asthma and seven patients have Moderate persistent asthma.

From three girls who are aged 9 to 12, all are patients with mild persistent asthma.
From six boys who are aged 9 to 12, four patients have mild persistent asthma and two patients have Moderate persistent asthma.

Group 2:
In this group there are also 30 children aged 4 to 12, 9 are girls and 21 are boys.
In this group, girls all are aged 4 to 8 years old, in boy patients, 17 people are aged 4 to 8 and 4 people 9 to 12 years old.

From nine girls who are aged 4 to 8 years old, six patients have mild persistent asthma and 3 patients have moderate persistent asthma.

From 17 boys who are aged 4 to 8 years old, nine patients have mild persistent asthma and eight patients have moderate persistent asthma. All four boys who are aged 9 to 12 years old have moderate persistent asthma.

Third group:
This group is divided into two subgroups, and all diagnosed with moderate persistent asthma were entered into the study.

In the first subgroup of 15 patients are six girls and nine boys. From six girls, five people are aged 4 to 8 years old and one person is nine. From nine boys, seven people are aged 4 to 8 years old and two people are 12.
In the second subgroup of 15 patients, four girls who are aged 4 to 8 years old and eight boys, who are aged 4 to 8 years old and nine boys who are aged 9 to 12 years old.

While this study, some of patients were out of the research due to change the residence location and because their parents did not cooperate or they stopped using medicines.

Note that each patient has been monitored and followed-up for 6-9 months.

✠ People that were out from research were as follows:
- In the first group there were a 6-year-old girl and 2 girls, 9.5 and 11 years old, all three had mild persistent asthma, 3 boys who were aged 5 to 7.5 years old that 2 had mild persistent asthma and one of them had moderate persistent asthma and one 11.5 year old boy who had mild persistent asthma.
- In the second group there were, 3 girls who were aged 4 to 8 years old, 2 had mild asthma and one of them had moderate asthma and one ten year old girl with moderate asthma. There also were three boys in patients who were aged 4 to 8 years old that two people had mild persistent asthma and one of them had moderate persistent asthma.

- In the third group there were 2 girls under 8 years with moderate asthma and 3 boys (one 6 years old and 2 nine years old person) three with moderate asthma. As it is obvious, totally 9 girls and 11 boys left the treatment that most of them had mild persistent asthma and the research was continued with a total 70 patients.

The relationship between groups and response to treatment:
Observed values, expected values and the percentage of each group separately are calculated and presented in the table and Figure 3.

Table 3. Group and response to treatment

			Group				Total
			Beclomethasone	**Fluticasone**	**Beclomethasone plus Salmeterol**	**Fluticasone plus Salmeterol**	
Response to treatment	**positive**	Count	17	20	10	13	60
		Expected Count	19.7	18.9	10.3	11.1	60.0
		Within group (%)	73.9%	90.9%	83.3%	100.0%	85.7%
	negative	Count	6	2	2	0	10
		Expected Count	3.3	3.1	1.7	1.9	10.0
		Within group (%)	26.1%	9.1%	16.7%	.0%	14.3%
Total		Count	23	22	12	13	70
		Expected Count	23.0	22.0	12.0	13.0	70.0
		Within group (%)	100.0%	100.0%	100.0%	100.0%	100.0%

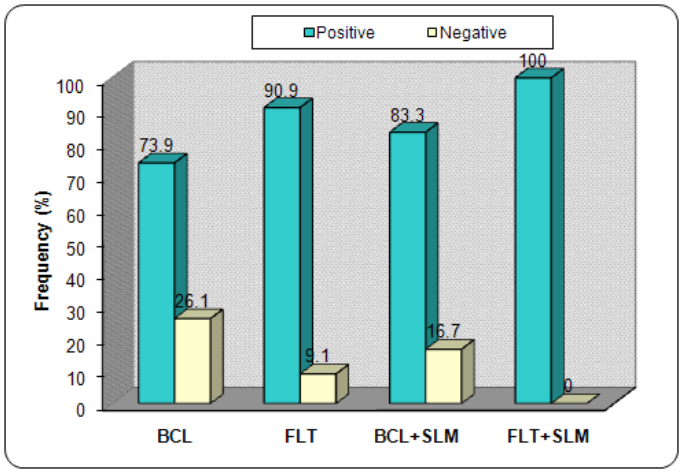

Figure 3. Group and response to treatment

In this study, zero assumption is independency of variables. If the significance level is less than 0.05, zero assumption will rejected and so this means there is relationship between parameters.

The value of chi square test is 5.32, degree of freedom is 3 and significance level in this test is 0.15. Considering that, the signification level of test is greater than 0.05, Independence assumption between two variables will not rejected. This means, there is no significant relationship between group and response to the treatment.

The relationship between gender and response to treatment:
Observed values, expected values and percentage of each group separately are calculated and presented in the table and Figure 4.

Table 4. Gender and response to treatment

			Gender		Total
			girl	boy	
Response to treatment	positive	Count	18	42	60
		Expected Count	18.0	42.0	60.0
		Within Gender (%)	85.7%	85.7%	85.7%
	negative	Count	3	7	10
		Expected Count	3.0	7.0	10.0
		Within Gender (%)	14.3%	14.3%	14.3%
Total		Count	21	49	70
		Expected Count	21.0	49.0	70.0
		Within Gender (%)	100.0%	100.0%	100.0%

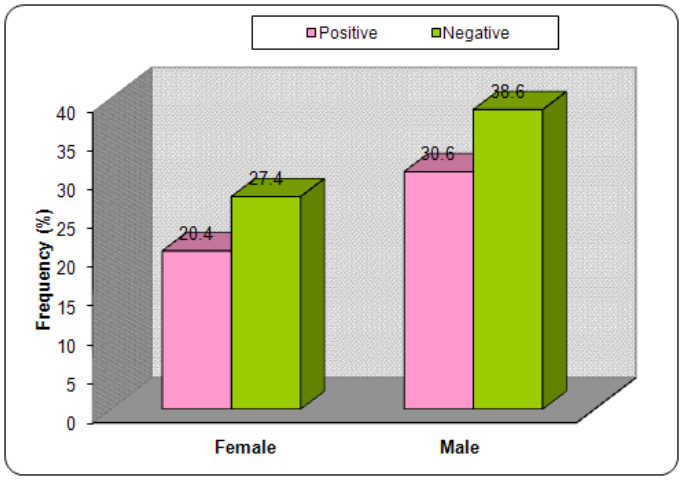

Figure 4. Gender and response to treatment

In this study, zero assumption is that variables are independent. If the significance level in the test is less than 0.05, zero assumption will rejected and so this means there is relationship between parameters.

The value of chi square test is 0.000, degree of freedom is 1 and significance level in this test is 1.0.

Considering that, the signification level of test is greater than 0/05. Independence assumption between two variables will not rejected. This means, there is no significant relationship between gender and response to the treatment.

The relationship between age and response to treatment:
Observed values, expected values and percentage of each group separately are calculated and presented in the table and Figure 5.

Table 5. Age and response to treatment

			age		Total
			4-8 years old	9-12 years old	
Response to treatment	**positive**	Count	47	13	60
		Expected Count	48.0	12.0	60.0
		Within age (%)	83.9%	92.9%	85.7%
	negative	Count	9	1	10
		Expected Count	8.0	2.0	10.0
		Within age (%)	16.1%	7.1%	14.3%
Total		Count	56	14	70
		Expected Count	56.0	14.0	70.0
		Within age (%)	100.0%	100.0%	100.0%

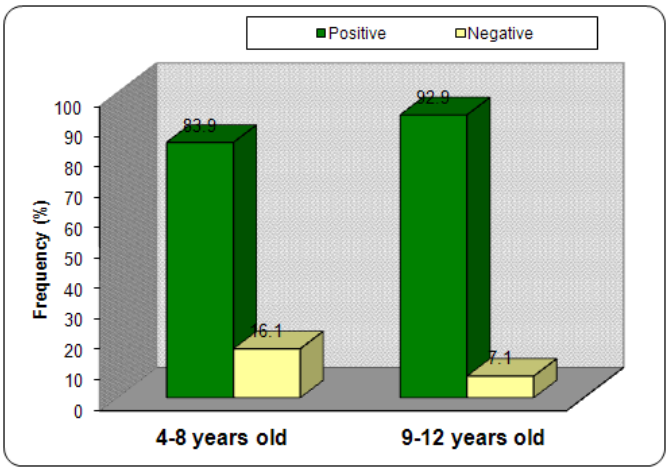

Figure 5. Age and response to treatment

In this study, zero assumption is that variables are independent. If the significance level in the test is less than 0.05, zero assumption will rejected; this means there is relationship between parameters.

The value of chi square test is 0.729, degree of freedom is 1 and significance level in this is 0.393. Considering that, the signification level of test is greater than 0.05 therefore Independence assumption between two variables is not rejected. This means, there is no significant relationship between age and response to the treatment.

The relationship between asthma and response to treatment:

Observed values, expected values and percentage of each group separately are calculated and presented in the table 6 and Figure 6.

Table 6. Type of asthma and response to treatment

			Type of asthma		Total
			Moderate Persistent Asthma	Mild Persistent Asthma	
Response to Treatment	Positive	Count	39	21	60
		Expected Count	42.0	18.0	60.0
		Within asthma (%)	79.6%	100.0%	85.7%
	Negative	Count	10	0	10
		Expected Count	7.0	3.0	10.0
		Within asthma (%)	20.4%	.0%	14.3%
Total		Count	49	21	70
		Expected Count	49.0	21.0	70.0
		Within asthma (%)	100.0%	100.0%	100.0%

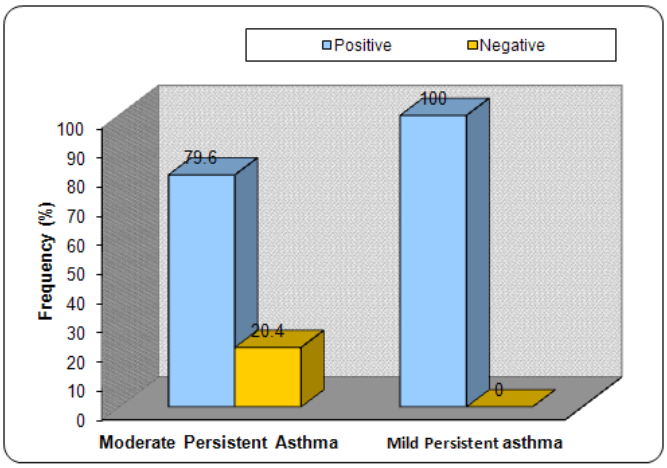

Figure 6. Type of asthma and response to treatment

In this study, zero assumption is that variables are independent. If the significance level in the test is less than 0.05, zero assumption will rejected; this means there is relationship between parameters.

The value of chi square test is 5.0, degree of freedom is 1 and significance level in this test is 0.025. Considering that, the signification level of test is less than 0.05, Independence assumption between two variables will rejected, this means, there is significant relationship between asthma and response to the treatment. In patients with moderate persistent asthma, negative respond to the treatment is more.

The relationship between types of asthma and response to treatment in Beclomethasone group:

Observed values, expected values and percentage of each group separately are calculated and presented in the table and Figure 7.

Table 7. Types of asthma and response to treatment in beclomethasone's group

			Type of asthma		Total
			Moderate Persistent Asthma	Mild Persistent Asthma	
Response to Treatment	Positive	Count	7	10	17
		Expected Count	9.6	7.4	17.0
		Within treatment group (%)	41.2%	58.8%	100.0%
		Within asthma group (%)	53.8%	100.0%	73.9%
	Negative	Count	6	0	6
		Expected Count	3.4	2.6	6.0
		Within treatment group (%)	100.0%	.0%	100.0%
		Within asthma group (%)	46.2%	.0%	26.1%
Total		Count	13	10	23
		Expected Count	13.0	10.0	23.0
		Within treatment group (%)	56.5%	43.5%	100.0%
		Within asthma group (%)	100.0%	100.0%	100.0%

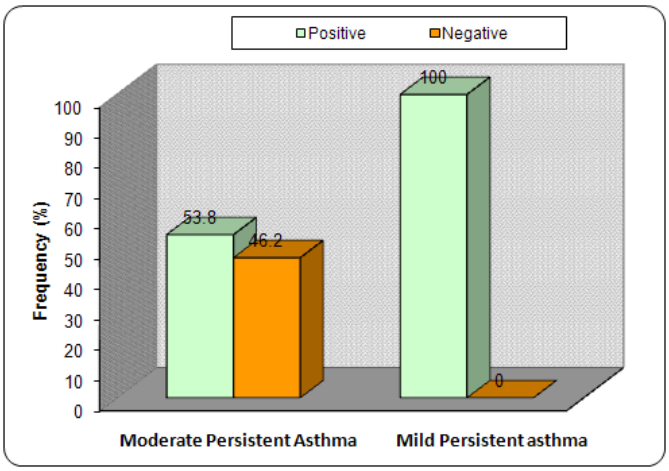

Figure 7. Types of asthma and response to treatment in beclomethasone group

In this study, zero assumption is that variables are independent. If the significance level in the test is less than 0.05, zero assumption will rejected; this means there is relationship between parameters.

The value of chi square test is 6.244, degree of freedom is 1 and significance level in this test is 0.017. Considering that, the signification level of test is less than 0.05, Independence assumption between two variables is rejected, this means, there is significant relationship between types of asthma and response to treatment in Beclomethasone group. In patients with mild persistent asthma, positive respond to the treatment is more.

The relationship between types of asthma and response to treatment in fluticasone group:
Observed values, expected values and percentage of each group separately are calculated and presented in the table and Figure 8.

Table 8. Types of asthma and response to treatment in the fluticasone group

			Type of asthma		Total
			Moderate Persistent Asthma	Mild Persistent Asthma	
Response to Treatment	Positive	Count	9	11	20
		Expected Count	10.0	10.0	20.0
		Within treatment group (%)	45.0%	55.0%	100.0%
		Within asthma group (%)	81.8%	100.0%	90.9%
	Negative	Count	2	0	2
		Expected Count	1.0	1.0	2.0
		Within treatment group (%)	100.0%	.0%	100.0%
		Within asthma group (%)	18.2%	.0%	9.1%
Total		Count	11	11	22
		Expected Count	11.0	11.0	22.0
		Within treatment group (%)	50.0%	50.0%	100.0%
		Within asthma group (%)	100.0%	100.0%	100.0%

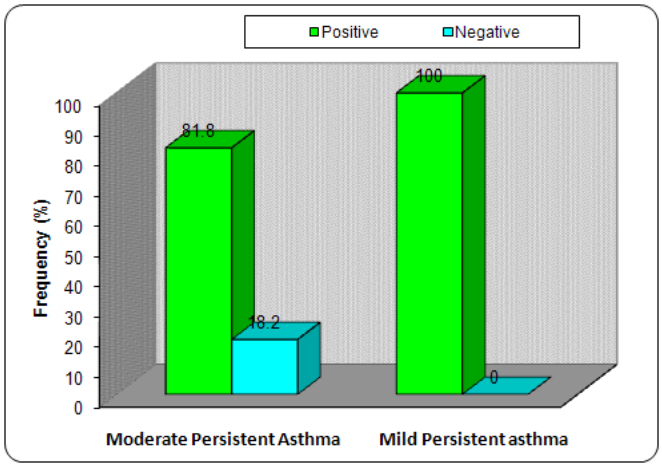

Figure 8. Types of asthma and response to treatment in the fluticasone group

In this study, zero assumption is that variables are independent. If the significance level in the test is less than 0.05, zero assumption will rejected; this means there is relationship between parameters.

The value of chi square test is 2.2, degree of freedom is 1 and significance level in this test is 0.238. Considering that, the signification level of test is greater than 0.05. Independence assumption between two variables is not rejected. This means, there is no significant relationship between types of asthma and response to treatment in fluticasone group.

The relationship between types of asthma and response to treatment in group Beclomethasone + salmeterol:

Observed values, expected values and percentage of each group separately are calculated and presented in the table and Figure 9.

Table 9. Types of asthma and response to treatment in Beclomethasone+salmeterol group

Response to Treatment			Moderate Persistent Asthma	Total
	Positive	Count	10	10
		Expected Count	10.0	10.0
		Within treatment group (%)	100.0%	100.0%
		Within asthma group (%)	83.3%	83.3%
	Negative	Count	2	2
		Expected Count	2.0	2.0
		Within treatment group (%)	100.0%	100.0%
		Within asthma group (%)	16.7%	16.7%
Total		Count	12	12
		Expected Count	12.0	12.0
		Within treatment group (%)	100.0%	100.0%
		Within asthma group (%)	100.0%	100.0%

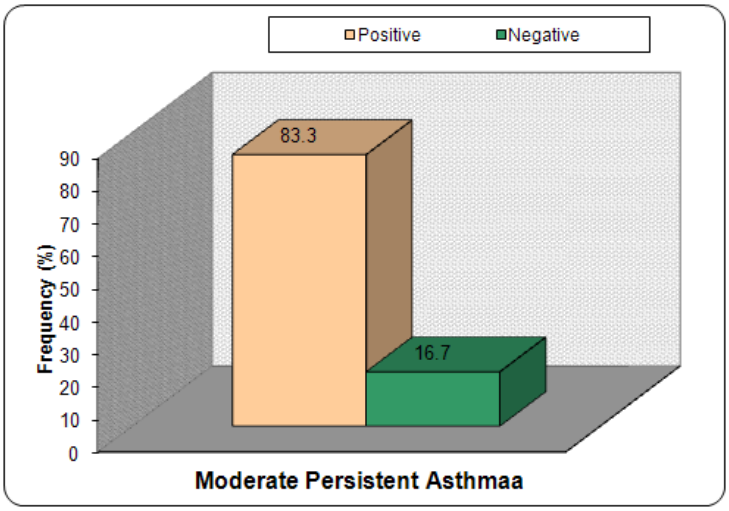

Figure 9. Types of asthma and response to treatment in Beclomethasone+salmeterol group

In this study, zero assumption is that variables are independent. If the significance level in the test is less than 0/05, zero assumption will rejected; this means there is relationship between parameters.

Value of chi square test cannot be calculated. This means, there is no significant relationship between types of asthma and response to treatment in Beclomethasone+salmeterol group.

The relationship between types of asthma and response to treatment in group fluticasone + salmeterol:

Observed values, expected values and percentage of each group separately are calculated and presented in the table and Figure 10.

Table 10. Types of asthma and response to treatment in fluticasone+salmeterol group

	Response to Treatment	Moderate Persistent Asthma	Total
Positive	Count	13	13
	Expected Count	13.0	13.0
	Within treatment group (%)	100.0%	100.0%
	Within asthma group (%)	100.0%	100.0%
Total	Count	13	13
	Expected Count	13.0	13.0
	Within treatment group (%)	100.0%	100.0%
	Within asthma group (%)	100.0%	100.0%

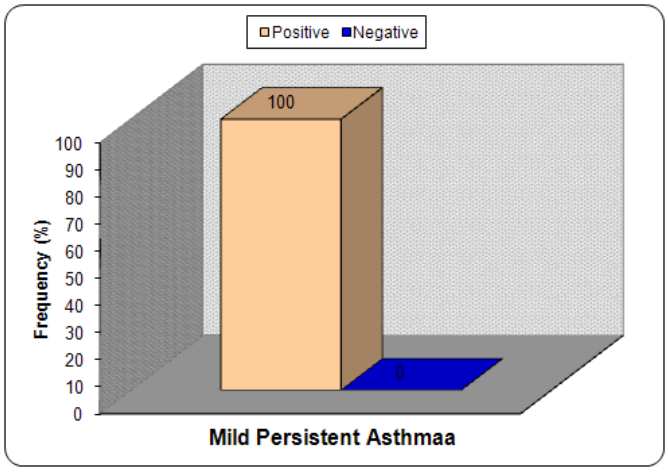

Figure 10. Types of asthma and response to treatment in fluticasone+salmeterol group

In this study, zero assumption is that variables are independent. If the significance level in the test is less than 0.05, zero assumption will rejected; this means there is relationship between parameters.

Value of chi square test cannot be calculated. This means, there is no significant relationship between types of asthma and response to treatment in fluticasone+salmeterol group.

RESULTS OF THE TESTS

- **In the first group that were treated with beclomethasone's prescription :**

All children who entered the study with mild persistent asthma Diagnosis demonstrated good recovery. Moreover, during 6-9 month that they were monitored, there were two acute asthma attacks, which were treated by using short acting β2 agonists.

From 14 children who had moderate persistent asthma, one person was excluded from the study. From 13 remaining person, six person including two girls and 4 boys didn't respond completely to the treatment. Three people from them could not completely get rid of wheezing and they had restriction in playing. In addition, the other three people were constantly complaining from night coughs. All six patients needed additional medicines, that salmeterol (long acting β_2 agonists) was prescribed. Finally, during remaining monitoring period, all of them had good recovery.

In the second group that were treated with fluticasone prescription:

Between All children who entered the study with mild persistent asthma Diagnosis, four persons were excluded for various reasons. All 11 remaining patients demonstrated good and acceptable treatment results.

From 15 children in this group who had moderate persistent asthma, two boys continued nocturnal cough and eventually, it let to second medicine's prescription (salmeterol).

In third group

From the first subgroup (15 people) who had been received fluticasone plus salmeterol, 1 girl and 2 boy were excluded from the study, and from 12 remained patients, 2 person (both were boys), in one of them whizz and in the other nocturnal cough continued. That both moved to the second subgroup and showed a good recovery.

In the second subgroup, two patients were excluded from the study, and two patients joined them from the first subgroup which they all had good response to therapy had good improvement.

As you can see:

A) In the first group that were treated just with Beclomethasone, all children with the diagnosis of mild persistent asthma, had good response to the therapy, but in 13 people with moderate persistent asthma, six patients, which mean approximately 46.2 %, did not have appropriate response to the therapy and needed second medicine.

B) In the second group that were treated just with fluticasone, all children with the diagnosis of mild persistent asthma, had good response to the therapy, but 2 patients with moderate persistent asthma, which is about 18.2% needed second medicine.

C) In the first subgroup of third group that were treated with fluticasone and salmeterol, from the 12 patients with moderate persistent asthma, 2 patients, means 16.7%, didn't have good respond to the treatment.

D) In the second subgroup of third group, which were treated with fluticasone and salmeterol, all had appropriate response to treatment.

DISCUSSION

Asthma is considered as one of the most common childhood diseases [1]. Asthma's clinical symptoms are: cough, whizzing, shortness of breath or tachypnea and feeling pressure on the chest [2]. Because of These symptoms, child is failed in her/his everyday activities like playing with peers. In addition, in school ages it causes study backwardness and the subsequent problems.

According to the high statistics about the prevalence of this disease among children and imposing high medical expenses as a burden on the economy [3], examination and treatment necessity for this disease has increased, so extensive researches to compensate the problems and reduce the complications of the disease were conducted. In 1981, asthma prevalence was about 3.1%, which has been increased to 6.9% in 1994. Various medicines are used to treat asthma that corticosteroids are the most important group of these medicines and Fluticasone,

Beclomethasone and Budesonide have high consumption among them. The study that White and his colleagues conducted demonstrated that there is no difference in the efficacy of Beclomethasone and Budesonide [12].

Another study conducted by Harvey & Williams, demonstrated that, in improving lung function and controlling problems as a bronchodilator, Fluticasone 200Mg is more effective than Budesonide 400Mg [14]. Fluticasone 200Mg was more effective in disease control and Whizz reduction in the present study too.

In the study, which was conducted by Sim and his colleagues, about the children with moderate asthma, fluticasone also had a good effect [18] which is consistent with the results of our study.
A study which presented by Hans Bisgaard about children with moderate asthma, Also showed that increasing the dose of Fluticasone does not have significant differences in disease's symptom relief. However, later in the treatment those who received higher doses were less suffered exacerbation [22]. In the present study, also increases in the therapeutic dose, reduced treatment failure and fluticasone combination with a β_2 agonist bronchodilator was without treatment failure.

It was stated in a study that 200 Mg amount of Fluticasone per day is as effective as 400 Mg Beclomethasone per day in controlling mild or moderate asthma [14]. It also has been shown in this study that the failure of treatment with Beclomethasone is two fold of the treatment with Fluticasone, that the 2 to 1 effect of Fluticasone in comparison with Beclomethasone can be deduced.

In a study, also the 2 to 1 effect of Fluticasone to Beclomethasone was indicated, that due to what was noted above, it is consistent with present study.

Most reports demonstrated that fluticasone has positive effects on lung function improvement with minimum corticosteroid's side effects on the growth and adrenal suppress. In addition, it was stated in some of the studies that age and gender had no effect on increasing or decreasing the respond to the treatment. In this study, also significant relationship between age and gender and respond to the treatment was not found.
In patients with mild persistent asthma, treatment with both medications performed with no therapeutic failure and patients had appropriate response to treatment. However, in moderate persistent asthma in one-medicine treatment, fluticasone demonstrated less failed than Beclomethasone and in two- medicine treatment with salmeterol, fluticasone has no treatment failure but Beclomethasone had treatment failures. Therefore, treatment with fluticasone in mild asthma, and treatment with fluticasone plus salmeterol in moderate persistent asthma, is more effective in reducing symptoms and response to treatment. In addition, for the patients who suffer continual nocturnal coughs, from the beginning, prescribing two medicines (fluticasone plus salmeterol) will give better results. Considering the high prevalence of asthma among children and the importance of the issue, From the beginning (age of 4-5 year) with periodic checkups (every 3 months) and a complete history from parents, we can identify and separate people with the risk of asthma, then with diagnosis, necessary and immediately treatment can be performed.

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