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Research Article

Evaluation of Early Detection Program of Bronchial Asthma in Primary Health Centers of Al-Nasiriyah City/ 2016

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ABSTRACT

One of the main important public health objectives is the prevention of childhood asthma. Evaluating the effectiveness of early detection of childhood asthmatic symptoms, followed by a counseling intervention at preventive child health centers is the corn stone of this study. Early detection and counseling is expected to reduce the prevalence of asthma symptoms and improve health quality in general. This study aimed to evaluate the early detection program of asthma through structure or preconditions of early detection program of asthma, process to be carried out to deliver this program, outcome (Intermediate and ultimate indicators) and lastly opinion of consumers and providers. Evaluation type of study had been conducted all over the 2016. Nine health care centers were involved since the 1st week of January 2016, where an early detection tool had been applied at age groups 1, 2-5, 6 and more than 6 years at the intervention centers. Children who met the intervention criteria received counseling intervention (personal advice to parents to prevent the child from exposure to smoking, and/or referral to the general practitioner or asthma nurse). The primary outcome was asthma diagnosis at age 6 years. Secondary outcomes included frequency and severity of asthma symptoms, health-related quality of life at age 6 years. Analysis was done according to the intention-to-treat principle. Data collection was completed at the 1st of November 2016. Evaluation of the present input, process of PHC for early detection program resulted in: Providing most of the human resources in terms of laboratory assistants and coordinators of the program. Providing most of the material resources such as pressure gauges, medical handset and scales and tape measure height and waist needed to work in the laboratory with the availability of a suitable place for the work program staff to do their job and appliances. The percentage for input was 60% for all PHCs. While regarding consumer satisfaction: Most of consumer are highly satisfied 149 (80.1%) while not satisfied only 8 (4.3%) and high numbers gave the reason due to good services 97 (52.5%) and no comments 71 (38.2%). Regarding the proportion of the detected cases for different non communicable diseases was 44.1% of the whole population that have alarming sign and symptoms of NCD. The lack of doctors of all spatiality (GP, graduted doctors and specialist), lack of some essential tools, following wrong guidelines for this program by general health department by abolishment many ministerial guidelines, human mistakes and lack of training of staff of program, there no feedback mechanism for referral patient from hospital to PHC, lack of some treatment and investigations and some services not free.

Keywords: Bronchioles, Asthma, Thi-Qar, Iraq.

INTRODUCTION

Definition: Bronchial asthma is a significant public health problem which is found in all parts of the world. It most commonly begins during childhood, with an estimated worldwide prevalence of approximately 10% among children and youths less than 18 years of age[1-3].

Extent: The current reported prevalence in the Middle East region is somewhat lower, varying between 5.6% in Saudi Arabia and 8.5% in Kuwait. In Iraq, approximately 200,000 patients per year with asthma are either hospitalized or treated in an Emergency Room.

Generally, between 50% and 80% of cases of asthma are evident by 5 years of age. Although it is most problematic during childhood., symptoms may disappear in up to 50% of those with relatively mild severity by late adolescence; while 80% of those with more severe conditions symptoms will persist with the disease into adulthood. Fortunately, as immunologic capacity declines with age, the symptoms of asthma usually decline in the older population[4-8].

Pathophysiology: Asthma is a chronic inflammatory disorder of the airways resulting in, variable bronchial obstruction which is potentially reversible with appropriate therapy or spontaneously. It is typically characterized by episodic attacks of breathlessness, cough, and wheezing (asthma triad).

Triggers: The bronchial wall inflammation noted in asthma can be provoked by a number of environmental and intrinsic triggering factors. These result in airflow obstruction of varying degrees, with the accompanying physical findings of expiratory wheezing, cough, chest tightness and agitation. In those with chronic symptoms, this inflammation is always present to some degree, regardless of the level of severity of asthma[9].

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Table 1: Classification of Asthma severity: Clinical features before treatment.

	Days with Symptoms	Nights withSymptoms	PEF or FEV1 *
Mild Intermittent	≤2 symptomatic episodes/week	≤2 nights/month	≥80%
Mild Persistent	3-6 symptomatic episodes/week	3-4 nights/month	≥80%
Moderate Persistent	Daily symptoms	≥5 nights/month	>60%- <80%
Severe Persistent	Continual symptoms	Frequent	≤60%

*Predicted values for forced expiratory volume in 1 second (FEV_1) or percent of personal best for peak expiratory flow (PEF) (relevant for children 6 years old or older who can use these devices).

Table 2: Evaluation of the present input and process of PHC centers in comparison to standard ministry formula (final scored result)

Nasiriya sector	PHC name	Standard Input	present input	Standard Process	present process	Total marks
1st	Almansoriy	39	30	61	39.5	69.5%
1st	Al-Hassan	39	27.5	61	20	47.5%
1st	Al-Karrar	39	24	61	34.5	58.5%
2nd	Al-Tadreeby	39	30	61	39	69%
2nd	Sumer	39	23.5	61	20	43.5%
2nd	Al-Salhia	39	25	61	36	61%
2nd	Al Habboby	39	30	61	30	60%
2nd	Al Imam Al Reda	39	27	61	39	66%
2nd	Al- Shahed Waleed	39	21	61	22	43%

Diagnosis: It is diagnosed primarily when the following three conditions are true:

Episodic symptoms of obstruction of airflow is present

Airflow obstruction is at least partially reversible

Alternative possible causes of this airflow obstruction are excluded by history and physical examination

History, Physical Examination, Diagnostic tests and procedures (Pulmonary Function Tests: Spirometry, Peak Expiratory Flow Rate), Chest X-ray, Sinus X-rays and Oxygen saturation, or blood gas measurement[1,10].

Classification of Severity

It forms the basis for the intensity of medical therapy. The level of severity should be classified according to the frequency of occurrence of symptomatic episodes of any of the following (Table 1): Coughing episodes, Chest tightness, Shortness of breath and Episodes of wheezing

Referral Indications

A patient with asthma should be referred to an appropriate specialist and higher level of care under the following conditions: Confirmation of diagnosis of asthma, associated medical conditions, or further medical opinion, Presence of complications such as pneumonia, or complications of asthma treatment, If therapeutic goals, such as a significant reduction in the frequency of acute asthma episodes or symptoms, have not been reached within six months, Presence of severe asthma (Step 4) and Immediately after all necessary emergency measures have been taken and any of the Cardinal Danger Signs are present[11-13].

Health Education Messages

Over the course of regular follow-up visits, physicians and the health care team should provide the following general information and counseling about asthma and its management:

Asthma is a chronic lung disease characterized by inflammation of the airways. There may be periods when there are no symptoms, but the airways are swollen and sensitive to some degree all the time. Long-term anti-inflammatory (Controller) medications are important to control the airway inflammation.

Many things at home, school, work, or elsewhere can cause asthma attacks (e.g., secondary smoke, allergens, irritants). An asthma attack occurs when airways narrow, making it harder to breathe.

Asthma cannot be "cured", but it may improve spontaneously in some patients, and can be controlled with some alteration of lifestyle and medication, and the patient can live a normal life with appropriate care.

Asthma can be best controlled when the patient works together with the medical staff. The patient plays a big role in monitoring asthma, taking medications, and avoiding things that can cause asthma episodes.

Asthma requires long-term care and monitoring. It can get better or worse over time and requires periodic changes in treatment.

All patients should keep aß$_2$ agonist (salbutamol) inhaler and a spacer device accessible and available at all times, and instructed in the optimal use of the inhaler for acute symptoms.

All patients should be instructed in the proper use of the inhaler (see Annex I).

The benefits and potential risks of corticosteroids should be discussed, with emphasis on the low risk of long-term complications with the use of inhaled corticosteroids compared to the use of injected or oral steroids.

Discussion may be necessary regarding beliefs about the influence of diet and its effect on asthma.

A patient's response to asthma triggers may change over time.

Children with asthma should be encouraged to participate in school exercise activities as long as the asthma is controlled. They may need to use a pre-exercise

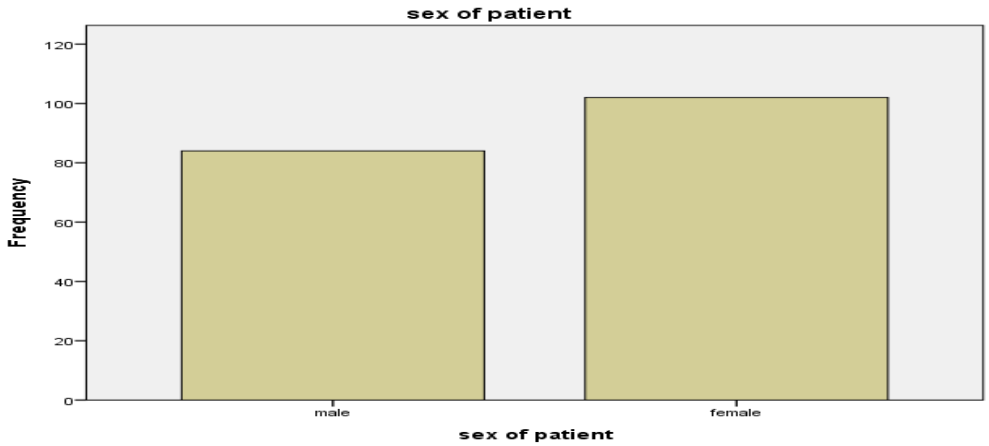

Figure 1: Distribution of studied population according to their gender.

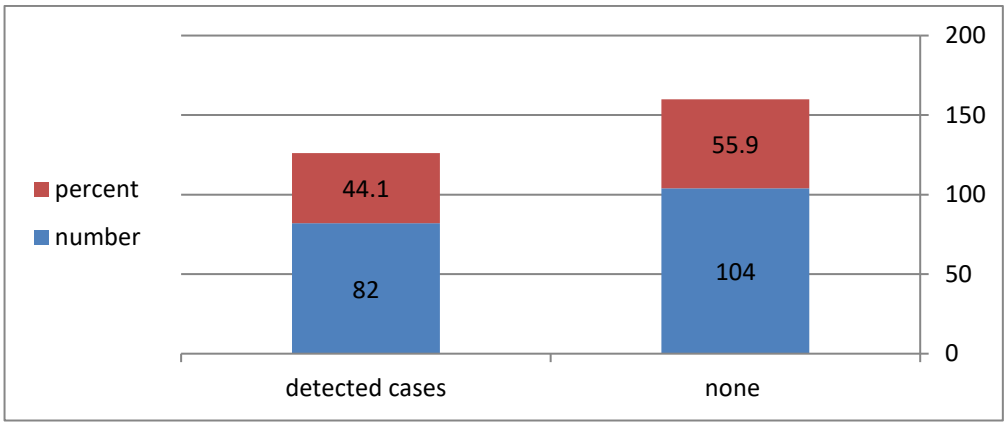

Figure 2: Distribution of studied population according to their health status.

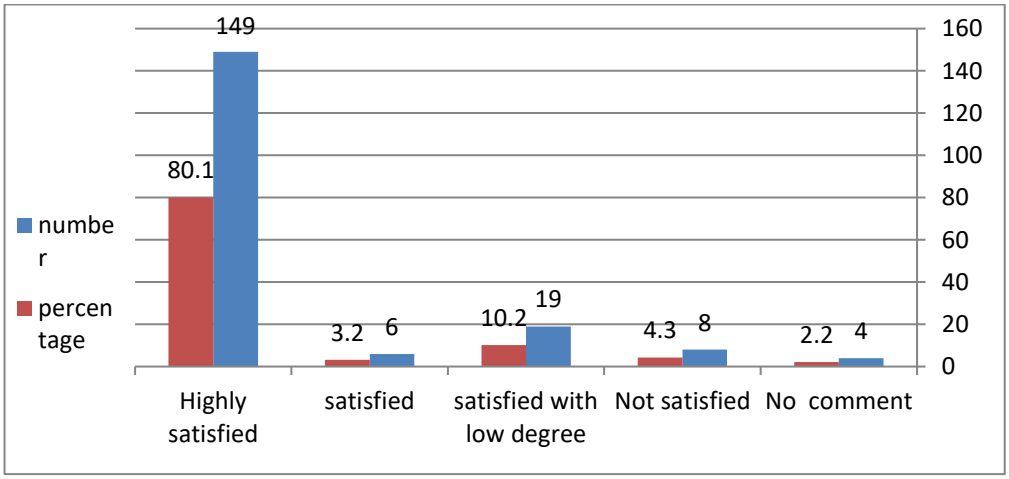

Figure 3: Distribution of the consumer according to their satisfaction about the NCD early detection introduced services.

salbutamol inhaler, or take a pre-exercise dose of monteleucast.

In addition, the patient and parents should be taught the Danger Signs, which should make them seek help immediately[1,3, 7-9,12]]

Aim of the study

To evaluate the early detection program of asthma through:

Structure or preconditions of evaluation of early detection program of hypertension and diabetes mellitus process

Process to be carried out to deliver evaluation of early detection program of hypertension and diabetes mellitus

Outcome - Intermediate indicators

- Ultimate indicators

Opinion of consumers and providers

METHODOLOGY

The study setting

The study was carried out in An-Nasiriya City, which is the capital of Thi-Qar Governorate. It has many health facilities including 21 primary health care centers.

Type of study: evaluation type of study

Study population: early detection program of asthma in PHCs (3 in An-Nasiriya 1st sector and 6 in An-Nasiriya 2nd sectors) and

Opinion of consumer:

Sampling and sample size: for service user opinion

A-Sample size

It was calculated by the following formula (14):

$$N = \frac{(1.96)^2 \times P\,(1-P)}{d^2} \times \text{design effect (factor) } (1.8)$$

Where: N= Sample size, P= Estimated prevalence rate from other studies which was (**13.9%**), d= Maximum tolerated error, the value of 0.04 was chosen as an acceptable limit.

$$N = \frac{(1.96)^2 \times 0.139 \times 0.861}{(0.04)^2} \times 1.8 \approx 186$$

An-Nasiriya city divided by Euphrates into two areas; Alshamiah area to the south of the river which is subdivided into six PHCs while to the north of the river, Aljazeera area subdivided into fifteen main PHC

First stage 3 PHCs were selected from the Alshamiah area by simple random sampling from a list consist of six PHCs (Al mansoria, Alkarar and Alhussan PHCs) and 6 PHCs catchment areas were selected from Aljazeera area that contains a list of fifteen PHCs (Alhaboby, Sumer, Alsalhiay, Ashaheed Waleed, Altadreeby and Imam Al Reda PHCs).

The tools of the study: the questionnaire and direct observation to evaluate the early detection program asthma in PHCs by

- Structure or preconditions evaluate the early detection program of hypertension and diabetes mellitus process
- Process to be carried out to deliver evaluate the early detection program of hypertension and diabetes mellitus
- Outcome - Intermediate indicators
  - Ultimate indicators
- Opinion of consumers and providers

The procedures of interviewing, recording, coding and checking of the data.

The survey included open-ended questions encouraging patients to describe the aspects or the Program that they found most useful and those that were least useful in helping them manage their condition

Duration of study: 15/1/2016 to 1/9/2016

Criteria of inclusion and exclusion: any sub district away 10 km from An-Nasiriya excluded

Person age

Person who has any one of these diseases is involved in the screening of the other.

People who have asthma are excluded from the program.

Checking the quality of data, Pilot study and pretest of the questionnaire had been done

Ethical considerations: An ethical clearance was obtained from Al-Hussein Teaching Hospital management to carry out the study. An informed consent also was taken from all respondents or the parents in case of children

Statistical analysis

The data analyzed by using statistical package for social science version (SPSS version 23): descriptive statistic, frequencies, percentages. Excel sheet had been used for drawing of the bar chart.

	Frequency	Percent
No comment	71	38.2
Good services	97	52.2
Lengthy routine	2	1.1
No treatment	11	5.9
No investigation	2	1.1
Services not free	2	1.1
Missed	1	0.5
Total	186	100.0

RESULTS

The percentage for input was 60% for all PHCs.

By analyzing the information and results of the evaluation have been pointing these strongest:

Provide most of the human resources in terms of laboratory assistants and coordinators of the program and cutters tickets.

Provide most of the resources and material resources such as pressure gauges, medical handset and scales and tape measure height and waist needed to work in the laboratory with the availability of a suitable place for the work program staff to do their job and appliances.

By analyzing the information and results of the evaluation have been pointing these weaknesses

Cancel action insert own computerized data system and notifications by the public health department and all sectors.

Cancel Form work for the program, according to Department of Public Health Notifications

Cancel health work file that information is documented in it, according to notifications Department of Public Health.

Cancel your work program was developed to record a new record is printed papers and planned a new record, which is the formal.

The lack of work in the laboratory contexts in most centers.

The program does not work contexts provide the official program and most of the primary health care centers.

The abolition of the Form for the program and the abolition of labor health file may negatively impact on the degree of processes so impaired class (22 g 5 of 61) and all the centers while the abolition of the computer and data entry led to a decrease of 6 degrees out of 39 standards for input and each centers.

Cancel Form work and health file and computer and pointing reconstruction covered pen Red was based on the directives of the public health department, either through workshops or through official letters circulated to the centers and sectors

The statistical used (Ministerial model) included the total number of auditors and by age group, and follows the program does not fall within the ambit and thus the ratio of

the number of registered program record on the number covered by the program is low
The highest degree is 69.5% for Almansoria PHC then 69% for Altadreeby PHC while lowest degree is 43% for al Shaheed Waleed PHC
Cancel action insert own computerized data system and notifications by the public health department and all sectors.
While consumer opinion are measured by used special questioner of 186 patients and the results as following:
The females are 102 (54.8%) more than males 84(45.2%).
Regarding the proportion of the detected cases for different non communicable diseases was 44.1% of the whole population that have alarming sign and symptoms of NCD
Most of consumer are highly satisfied 149 (80.1%) while not satisfied only 8 (4.3%) and high numbers give the reason due to good services 97 (52.5%) and no comments 71 (38.2%).

DISCUSSION

This study was aimed to evaluate an early detection tool and program that is based on symptoms, that should be followed by a counseling intervention. The goal is to improve their wellbeing by applying an early detection and intervention program in primary health centers to promote early detection of asthma symptoms in pre and school children.
Even though, there is no evidence that early detection and counseling interventions at young age alter the natural course of asthma[15] but, the length of the asthma disease process is related to to impaired lung function[16]. So far, important thing that is intervention during the early stages of asthma[16].
The result of evaluation of unites of non- communicable diseases which include the early detection program of bronchial asthma showed the following is nearly similar to that of evaluation unite in thi-qar health directorate where do evaluation of same program in PHC outside An-Nasiriya City (Suq al- Shukh, Marshes, Al Refai and Qalat Saqer sectors) where same strongest and weakness points and highest degree is 66.5% for Abid al Ameer Shalal PHC and lowest degree is 36% for al huda PHC[17].
This study shows that there is not wide difference in early detection of asthmatic symptoms than other studies[18-20], which might be due to difference in the design of the study, tools of assessment and epidemiological pattern of disease.
Regarding the rate of satisfaction was very high among consumer which might be due to nature of the services, that consider as a special services, it not of big difference than other studies[21,22].
Limitations:
1-ambiguity of some tools of assessment.
2-unreliabilty of some answer, especially for the consumer satisfaction

CONCLUSION

By analyzing the information and results of the evaluation have been pointing these weaknesses
Related to community behavior and general cultural level
The lack of doctors of all spatiality (GP, graduated doctors and specialist)
The lack of some essential tools
Following wrong guidelines for this program by general health department by abolishment many ministerial guidelines.
Human mistakes and lack of training of staff of program
There no feedback mechanism for referral patient from hospital to PHC
Lack of some treatment and investigations
Some services not free

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