

Bronchial Asthma in Preschoolers and Schoolchildren in Mapastepec, Chiapas; Importance of Timely Diagnosis

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Abstract

Objective: To evaluate the opinion of first contact physicians regarding the timely diagnosis and proper management in pediatric patients with bronchial asthma.

Material and Method: Cross-sectional study with physicians who attend pediatric patients in Mapastepec, Chiapas. Random sample of 434 physicians. Sociodemographic variables were studied: Sex, age, education, area in which he practiced medicine, years practicing, experience with pediatric asthmatic patients (high (> 5 years), medium (1 to 5 years) and low (< 1 year) according to the years of treating this type of patients), preferences for the diagnostic method, level of knowledge about bronchial asthma (high (90 - 100%), medium (70 - 89%) and low (<70%, according to a self-administered questionnaire) Opinion variables on the importance of early diagnosis, risks of late diagnosis, inopportune diagnosis, control and complications.

Results: Average age 38.2 years, 52% women. Bachelor's degree, 63%. Medical practice, 15 years or less (68%). Experience of treating pediatric asthmatic patients, 43% high level (> 5 years). 52% prefer to make a diagnosis based on studies and examinations and 47% have a high knowledge of bronchial asthma (90-100%). 95% consider timely diagnosis very important, 41% recognize that the consequence of an inappropriate diagnosis is severe chronic bronchial asthma.

Conclusion: The timely diagnosis of bronchial asthma is very important and most doctors know it, although a lack of knowledge about bronchial asthma was documented that should be reinforced through continuous training.

Keywords: *Bronchial Asthma; Diagnosis; Pediatric Patients; Control*

Introduction

Background

Bronchial asthma is a heterogeneous pathology that includes various phenotypes that share the same symptoms in common, but with a different pathophysiology. The World Health Organization (WHO) estimates that 235 million people in the world suffer from this disease and 383,000 people die annually, in addition to being a frequent cause of school absenteeism, poor quality of life and high health costs [1]. In addition, is the pathology that occupies the 14th place in world importance, in terms of degree of disability and duration [2]. While in

Mexico a prevalence of between 5-10% in preschool and school children is estimated [3]. Bronchial asthma, due to At the moment there is no cure, so it becomes a chronic disease that requires continuous treatment for its control [4,5].

The usual symptoms in children are: coughing, wheezing, shortness of breath and suffocation due to bronchial obstruction, limited expiratory airflow, tightness in the chest, which tends to intensify at night, when waking up and doing physical activity [6]. These symptoms vary in intensity and over time [7]. This pathology imposes on pediatric patients conditions that impede their proper growth and development, limits their physical activities and affects them emotionally [8].

In addition to generating concern and anxiety in their families in the face of crises, and high spending on treatments, medical appointments and hospitalizations [9].

Childhood asthma is classified according to the degree of control achieved in patient follow-up, based on the evolution of daily symptoms, activity limitation, use of rescue medications, pulmonary function tests, and exacerbations [10,11].

Viral respiratory infections, allergens, pollutants, and physical activity are the main triggers of the asthma attack [12]. In addition, a personal history of food allergies, atopic dermatitis and that the parents suffer from bronchial asthma or rhinitis are important [13,14]. The asthmatic crisis presents a pattern of seasonal variation, is higher in autumn, and in spring, associated with the exposure of pollens [15].

In children under 5 years of age, it is difficult to safely choose a diagnostic method. Because episodic respiratory symptoms, wheezing, and coughing can be common in children without asthma, especially in children under 2 years of age [16]. Therefore, their diagnosis is based on signs and family history.

Allergic sensitization is another point to consider, since the earlier it is, the risks of developing asthma permanently increase [17]. In children under 3 years of age, the diagnosis is made from three episodes of wheezing and taking into account the above aspects [18].

One of the consequences of the circumstances described above can result in a poor diagnosis, which is relatively common in the first level of care. The imprecision of the diagnosis ranges from 54%, which prevents adequate treatment and increases the progression of asthma [19]. Thus, the expectation and quality of the patient decrease significantly. The overdiagnosis of asthma is a serious matter in the same way, since you are classified as a disease that you do not have and you are given a treatment that you do not need and can put your health at risk. In addition, it will require going to a specialist and that raises costs [20].

Asthma treatment must be aimed at controlling asthma attacks. It begins with a first evaluation and has to be adjusted until it is controlled [21]. Asthma control significantly improves the patient's quality of life and reduces the financial burden on their parents, reduces the use of unnecessary medications and school absenteeism [22].

Adherence to treatment, which in most cases is low, is the main reason for poor control of the disease [23]. Adherence must be 80% for it to work in the long term. About 50% of children do not comply. In addition, continuous attendance at medical appointments increases the chances of adequate medication and long-term control, unlike emergency visits where only short-term medication is given [24].

Clinical control is achieved in cases under adequate and early treatment; however, in the majority there is no adequate clinical control; But the seizures and their intensity do decrease, and the progression of lung damage is prevented, thereby improving the child's quality of life, ensuring a healthy future adult [24]. However, it has been shown that in most pediatric cases, there is poor control of symptoms, related to an incorrect diagnosis and, therefore, a deficient or ineffective medication, which results in incomplete control and complications. This is a consequence of how difficult it can be to diagnose children [25].

A high percentage of preschoolers receive a bad diagnosis and inadequate treatments, such as cough suppressants, expectorants, antibiotics, antihistamines, among others, with little or no effect on the frequency or severity of symptoms [26]. Severe bronchial asthma can be the consequence of a bad control in childhood, which can be a severe chronic asthma which is related to a significant and irreversible damage to lung function, caused by the constant inflammation of the airways that begins at the time of rapid lung growth [27].

To control asthma, three pillars are necessary: correct diagnosis, individualized and effective treatment, and education for asthma patients in a multidisciplinary, progressive and continuous way [28].

A patient with true severe asthma requires complex and personalized, functional and clinical therapeutic protocols that allow achieving control and reducing future risks [15]. Prospective cohort studies have demonstrated the sensitization, clinical severity and persistence of the obstruction, they are the main factors of both the presence and severity of asthma throughout life [29].

75% of pediatric asthmatic patients with moderate to severe asthma have been shown to have an abnormal lung growth pattern, with a rapid decline in lung function and a high risk of developing chronic obstructive pulmonary disease (COPD) in adult life [20].

Studies have shown that the level of knowledge about asthma, in general practitioners, is medium, and about treatment, it is low, mainly in the selection and administration of drugs. This is worrying, since it is the general practitioners who must be prepared for the diagnosis and management of asthma, because they are the ones who have first contact with new patients. It is necessary to give adequate training to doctors about this disease, emphasizing its initial and timely diagnosis [30,31]. The patient must be oriented and the disease controlled to avoid unnecessary expenses for emergency visits [32].

Objective of the Study

The objective of this research was to evaluate the opinion of first-contact physicians regarding timely diagnosis and proper management in pediatric patients with bronchial asthma.

Material and Method

An observational, descriptive study of cross-sectional design was carried out by applying a structured survey to the population of physicians practicing medicine in the municipality of Mapastepec, Chiapas. A random sample was calculated for proportions with the following formula:

$$n = \frac{(z^2 \times p \times q)}{e^2}$$

Where:

n: Is the required sample size.

Z: The confidence level (95% = 1.97).

p: It is the probability that the event studied/Prevalence occurs.

q: It is the probability that the event studied does not occur (1-p).

e: Maximum accepted estimation error (5% = 0.05).

$$n = \frac{(1.97^2 \times 0.56 \times 0.44)}{0.05^2} = 378$$

The non-response rate was added to the partial calculation, which was 15% (56), so the final result was 434 physicians. The variables analyzed were: Sex, age, education, area in which he practiced medicine, years practicing, experience with pediatric asthmatic patients (high (> 5 years), medium (1 to 5 years) and low (< 1 year) according to years of caring for this type of patient), diagnostic method preferences, level of knowledge about bronchial asthma (high (90 - 100%), medium (70 - 89%) and low (< 70%, according to a questionnaire self-applied), opinion on the importance of early diagnosis, knowledge of the risks of a late diagnosis, consequences of an untimely diagnosis, opinion on control in pediatric patients, knowledge of the causes of complications, causes of control, notion about whether asthma it is or not a curable disease and whether or not asthma is the most frequent chronic disease of pediatric age.

The inclusion criteria were: That he is a doctor, that he is actively working, that he has experience working with pediatric asthmatic patients, that he currently practices medicine in the municipality of Mapastepec, Chiapas, that he wants to participate voluntarily in the study. The protocol was authorized by the university authorities of the Academic Area of Medicine and by the Municipal Authorities of Mapastepec, Chiapas.

The data processing was automated, virtual surveys were applied and the spreadsheets of the Excel® program, from the Microsoft Office® package for the year 2016, were used to create a database with the results obtained in the surveys.

The data analysis was descriptive, for quantitative variables measured of central tendency and dispersion, and for qualitative variables, proportions.

Results

During the study period, 437 doctors practicing in the municipality of Mapastepec, Chiapas, were surveyed to find out their opinion on the importance of the timely diagnosis of bronchial asthma in schoolchildren and preschool children.

In relation to age, the average age was 38.2 years, the group with the highest representation was 35 years or less, with 53%. 52% were women and 48% were men. At the level of education, the group with the highest representation were those with a bachelor’s degree, 63%; and with postgraduate degrees, 37%. In relation to the years of medical practice, 68% were 15 years or less at the time of the interview; 32% 16 or more years (Table 1). Regarding the area in which they practice, the group with the highest representation was in general medicine, 61%; pediatrics, 20%; allergology, 11%; and other areas of medicine, 10%.

Years	No.	Percent
≤15	295	68%
≥16	142	32%
Total	437	100%

Table 1: Distribution by years of medical practice of the population of doctors from Mapastepec, Chiapas.

Source: Project database.

Regarding the experience of treating pediatric asthmatic patients, 43% have a high level of experience (> 5 years), 36% have a medium level of experience (1 to 5 years), 17% have a low level of experience (<1 year), and 4% have no experience with pediatric asthmatic patients (Figure 1). According to the diagnostic method used, the majority, 52% prefer to make a diagnosis based on studies and examinations; 25%, by differential diagnosis; 24% prefer to be based on the clinic (Figure 2). In relation to the level of knowledge, 47% have a high knowledge (90 - 100%); 41%, medium (70 - 89%); 11% low (<70%); and 2% of those surveyed have no knowledge of pediatric bronchial asthma (Figure 3).

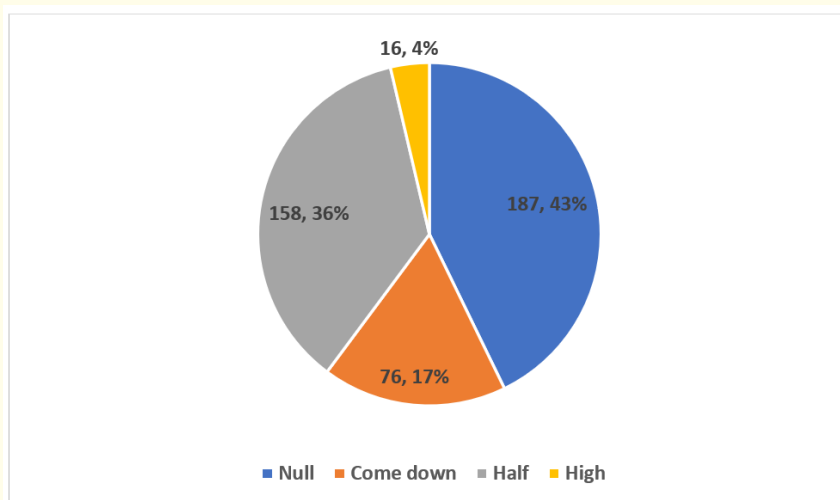


Figure 1: Physicians' experience with asthmatic patients. Mapastepec, Chiapas.
Source: Project database.

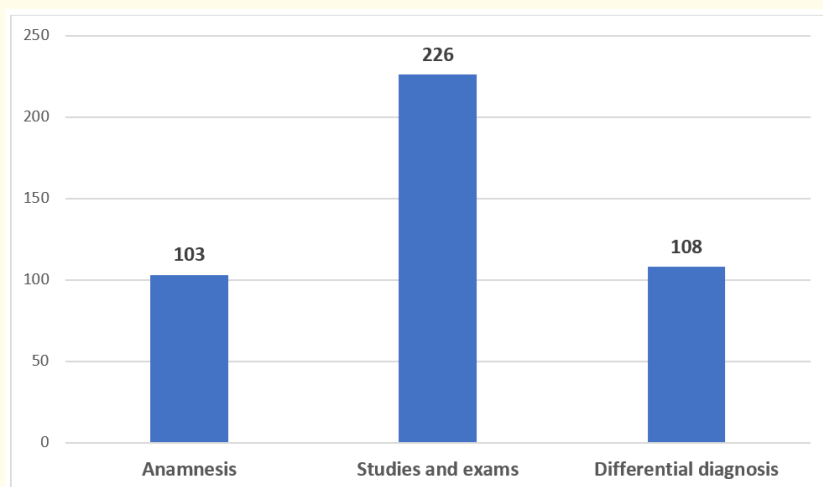


Figure 2: Preference for a diagnostic method for bronchial asthma by physicians from Mapastepec, Chiapas.
 Diagnostic method
Source: Project database.

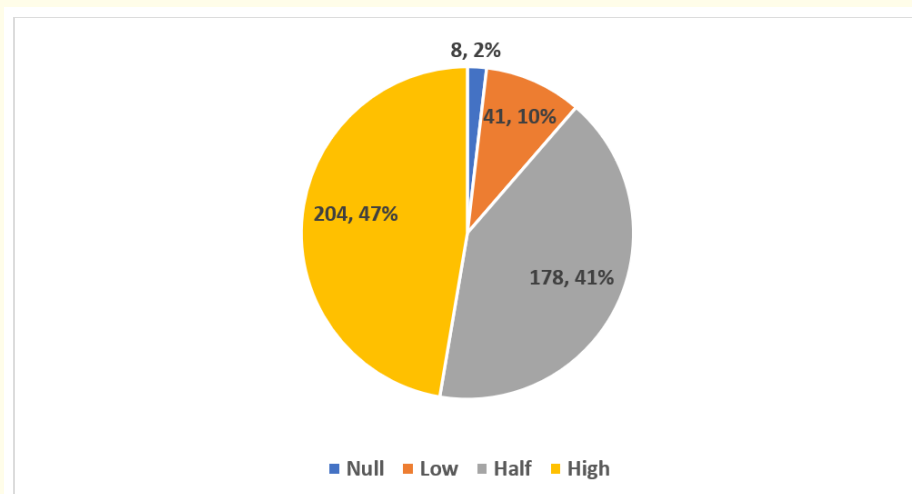


Figure 3: Physicians' level of knowledge of pediatric bronchial asthma.
Source: Project database.

About the importance of early diagnosis, 95% consider it very important, 5% (Figure 4). Regarding the knowledge about the risks of a late diagnosis, 71% know the risks; 26% are more or less aware of the risks; and only 3% do not know the risks. In what corresponds to the knowledge about the consequence of an untimely diagnosis, 41% of the doctors recognize that it is the severe chronic bronchial asthma; 32%, significant and irreversible damage to lung function; 18% severe respiratory failure; 4% acid-base imbalance; 2% pneumothorax and 3% other conditions. Regarding the opinion of doctors as to whether bronchial asthma in pediatric patients can be controlled, 89% consider that it is; 9% do not know; and 2% consider that it cannot be controlled (Table 2).

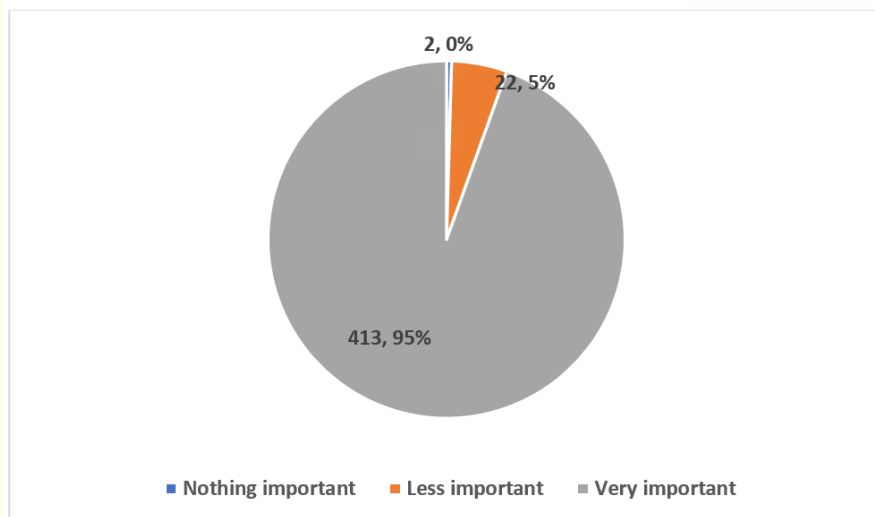


Figure 4: Opinion of physicians on the importance of early diagnosis of bronchial asthma in children.
 Source: Project database.

Control	No.	Percent
Yes	390	89
No	8	2
I dont know	39	9
Total	437	100

Table 2: Opinion on whether bronchial asthma in pediatric patients can be controlled. Doctors from Mapastepec, Chiapas.
 Source: Project database.

Regarding the most important cause of complications, 36% of those surveyed believed that due to poor treatment follow-up; 35% for inopportune or late diagnosis; 19% due to lack of knowledge of parents or guardians; and 11% consider that it is due to a bad economic situation. Regarding the knowledge about the most effective strategy for the control of bronchial asthma, 37% consider that with an individualized and effective treatment; 33% with a timely diagnosis; 21% with a good level of knowledge from parents or guardians; and 9% requires a sufficient economic situation.

Regarding the opinion of whether bronchial asthma is a curable disease, 70% of those surveyed consider that it is not curable, 16% do not know it and 14% consider that it is curable. Finally, regarding the knowledge that bronchial asthma is the most common chronic disease in pediatric patients, 71% of those surveyed thought that they did know it and 29% that they did not know it.

Discussion

The 437 doctors who practice medicine in the municipality of Mapastepec, Chiapas, do so in primary care health centers for the population and are the ones that are mainly visited for the first time by pediatric patients with signs of bronchial asthma not yet diagnosed, so it is important for these physicians to recognize the importance of early and timely diagnosis of bronchial asthma, especially in its early stages, when early control is easier to achieve with appropriate treatment.

Although a general practitioner can probably diagnose and treat a new asthmatic patient, it will always be necessary to refer the patient to the specialist. However, you must inform the parents and/or guardians about the pathology that your child could suffer for their referral to the specialist who provides complementary care both for their diagnosis, or the discarding of it; and for its treatment [32].

With the data obtained in this study, it can be inferred that approximately at least 96% of doctors throughout their years of service will surely attend a case of bronchial asthma in pediatric patients, and many of them will be cases that reach the areas emergency services of health centers or hospitals, due to the recurrent episodes of asthmatic attacks that infants usually suffer, especially when there is no adequate control of this.

Almost half of those surveyed have a high level of knowledge of bronchial asthma, the majority are specialists in pediatrics and allergology; a quarter have a medium level of knowledge, which should be the minimum acceptable, since asthma is the most common chronic disease in the world, learning about this pathology should be prioritized and protocols should be created or used for the correct treatment to patients and one in ten doctors has low knowledge, if we take into account the figures previously stated that 96% of doctors, even at some time, will find a case of pediatric bronchial asthma, despite being a low percentage, is really it is risky that doctors have very little knowledge about bronchial asthma, since they will not know what to do when an asthmatic patient comes to them with an attack, they will not be able to suspect a diagnosis of bronchial asthma in new patients or they may mistake it for another pathology, which can be harmful to the health of the patient, since the diagnosis can be underestimated or there may be an overdiagnosis and therefore an unnecessary treatment in patients who may not deserve it [31].

It is striking that 52% of the surveyed doctors prefer the diagnostic method based on studies and examinations; However, it should be remembered that the diagnosis of bronchial asthma is mainly clinical. The studies and examinations performed on the patient serve two purposes: to estimate the structural lung damage of chronic inflammation and to evaluate the control of symptoms. That is, studies and tests are not necessary to diagnose bronchial asthma.

Almost half of the doctors studied agree that severe chronic bronchial asthma is the most common consequence and one of the most difficult to treat, since a pediatric patient with severe asthma is difficult to control and it is likely that his asthma will intensify more over time throughout its growth. Likewise, a third of doctors consider that this damage is significant and irreversible to lung function, perhaps the most damaging, which can transcend until the patient needs a lung transplant, which is almost impossible to achieve and will probably end life of the patient.

Regarding the most important causes for achieving good control of bronchial asthma, one in three respondents considers that it is mainly due to an individualized and effective treatment and that for this a timely diagnosis is required, which shows us again that they are. These two factors, diagnosis and treatment, are responsible for achieving a control or not, but in the same way these are highly influenced or a consequence of the level of knowledge of the parents or guardians or the fact of having a good economic situation that allow access to quality health care [33].

Finally, the main theme of this study has been the opinion of the doctors of a municipality in the state of Chiapas, Mexico; on the importance of timely diagnosis of bronchial asthma in preschool and school children. Important results were obtained, considering that in the initial hypothesis contemplated, based on other studies, that 80% would consider it very important, our results show that 95% of the

437 physicians surveyed consider early diagnosis very important ($p = 0.07$) only 5% consider it unimportant and 0% do not consider it important. Which fulfills the objective of this study, which is to verify the importance, and affirms the initial hypothesis. In the same way, it is considered that the realization of this study could contribute to disseminate more information on the subject and promote the training and updating of doctors who practice medicine in Mapastepec, Chiapas; in the diagnosis and treatment of bronchial asthma in the pediatric population.

Conclusion

The timely diagnosis of bronchial asthma is very important and most doctors know it, although a lack of knowledge about bronchial asthma was documented that should be reinforced through continuous training.

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