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# The Problem of Adherence in the Management of Bronchial Asthma: An Educational Ambulatory Course Called "The School of Asthma"

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ABSTRACT

***Background****:The management of bronchial asthma is an emerging problem for physicians. The introduction of guidelines has improved the diagnosis of asthma, but not the patient's adherence. To resolve this problem, an educational ambulatory course called "The School of Asthma" was started in the year 2000 in the department of respiratory diseases of the 4th local health unit of Chiavari.*

***Materials and Methods****: A team comprised of a physician, a nurse and a psychologist informed a small group of patients (5-8 ) about the pathophysiology and clinical manifestations of asthma, its pharmacological therapy and the administration of inhalation drugs.*

***Results****: Our statistical evaluation showed a reduction in necessary use of bronchodilators, a decrease in visits to the emergency department and an increase in use of inhaled corticosteroids .*

***Conclusion****:These figures suggest that an educational course improves the adherence of the patients and may reduce the health costs of the disease.* ***(Tanaffos 2009; 8(4): 14-18)***

***Key words****: Bronchial asthma, Educational ambulatory course, Adherence*

## INTRODUCTION

In spite of the progresses made in the diagnosis of asthma and its improved prognosis in terms of patients' survival and quality of life, bronchial asthma remains an under- or late diagnosed disease and its treatment is often insufficient (1,2 ). The first difficulty is to explain to the patient that asthma is a chronic disease and has a wide margin of variability.

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This disease is different from patient to patient. Even in the same patient at different periods of respiratory condition, the symptoms may vary from complete well being to severe breakdown (3). Often, the patient himself minimizes his condition, shrugging off the importance of symptoms and postponing the visit to his clinician when his condition worsens. Asthmatic patients are often in denial about their situation, even when their illness produces invalidating symptoms. Gasping for air is not an experience that can be easily forgotten (4,5). In a great number of cases the patients do not perceive the chronic condition of their illness, its

long term outcome and the significance of long-term therapy (6). The real problem for the management of asthma is the adherence to treatment and self management (6).

Because of these problems, in the year 2000, a new educational ambulatory course called "The Asthma School" was set up to support an out-patient department known as the Asthma Center.

The project was set up for the following reasons:

A) The simple issuing of guidelines has not, alone, reduced the asthma related mortality rate.

B) The disease is controlled efficiently only when the patient himself takes an active part in managing the illness.

C) The educational courses aim not only to improve the public knowledge about the disease but also to teach self-management (7). The School of asthma is facing a problem of adherence (8). The doctor's prescription is closely linked with the patient's behaviour, both in drug administration and in lifestyle change. Adherence plays an important role in the management of bronchial asthma and the patient is required to accept a chronic therapy which must also be administered in periods of well being. More than 50% of patients do not follow the prescribed therapy and it is very difficult to determine whether or not the patient is going to comply to the treatment (6). The adherence to treatment is not linked to sex, level of education, personality or severity of symptoms (8).

Because of these factors, we believe that asthma therapy could be completed by continuous education of patients and therefore, in the year 2000, we built the School of Asthma, an educational and teaching centre alongside the previous out-patient department, the asthma centre.

## MATERIALS AND METHODS

***The organization of the School of Asthma:***

The ambulatory course is run by an interdisciplinary team informing patients about the self management of therapy. The team is made up of a physician, a nurse and a psychologist. The patients are divided into groups of 5-8 and each group attends three meetings. The second meeting is held two weeks after the first and the third one eight weeks after that. The school of asthma is held every six months (biannually).

***The first meeting:***

This meeting principally consists of a conversation between the nurse, the physician and the patient in order to establish a fiduciary relationship and is extremely important to ensure the patient's collaboration. Through simple questions each team member endeavours to establish a good level of knowledge regarding asthma and assures the patient of his/her availability to clarify any doubts and worries about the disease and its unleashing factors.

The first meeting lasts between 90 and 120 minutes, during which a generic questionnaire for quality of life is filled out. This is called Satisfaction Profile (SAT-P) and evaluates the patients' level of satisfaction with various aspects of their lives in the preceding month (8, 9).

***The second meeting (two weeks later):***

Several important issues are discussed in the second meeting including the pharmacological drugs against asthma – spirometry- the home test for pulmonary functions such as the peak flow meter (PEF) or peak-FEV 1 , the significance of the asthma control test (ACT), what to do during an asthmatic fit, the use of inhaled bronchodilators and the use of inhalation chambers. In this meeting, the nurse should have an active participation and he/ she has to demonstrate the correct way of measuring the pulmonary function tests (PEF or peak-FEV1) and the correct way of administering the inhaler spray, an inhalatory dust as well as the correct use of inhalation chambers.

***Third meeting (two months later):***

During the final meeting, the patients in a semi circular arrangement discuss their disease, their expectations, their doubts and fears.

The physician, together with the nurse, listens to their worries and gives useful advice aimed at

reassuring them. At the end of the meeting a second questionnaire (SAT-P) is compiled. The two questionnaires are evaluated by a psychologist and the results are conveyed to each patient. In selected cases the patient will be booked in for an interview with the psychologist.

Over a period of 5 years, 215 patients (146 males and 69 females) in the age range of 14-55 yrs (mean 34.6 yrs) participated in the school of asthma.

***Patients' selection***

Patients enrolled had persistent bronchial asthma (180 patients had mild asthma, 25 patients had moderate and 10 had severe asthma) (stage 2° - 3° - 4° GINA II) and everyone was being treated with a combination of inhaled beta adrenergics and corticosteroids or with corticosteroids alone. The functional parameters (FEV1 and Tiffeneau Index) were evaluated before the beginning of the course (but it was not included in the goal points of the project).

Patients' characteristics are reported in Table 1.

Table 1. Characteristics of the patients.

| | |
|---|---|
| Age ( range 14 – 57 years ) | 35.979±10.139 |
| Sex ( male ) | 67.9% |
| FEV1 % | 91.367±16.380 |
| Tiffeneau index | 74.842±4.285 |

***Goal points of the project***

Use of albuterol per week, the daily use of inhaled corticosteroids (beclomethasone or an equivalent drug), the number of visits to the emergency department , the Asthma Control Test (ACT) and the SAT-P questionnaire of quality of life composed of 32 items (8,9) were all evaluated (Table 2).

## RESULTS

175 of 215 patients completed the course of meetings (40 patients (18.60%) were unable to finish the course for different problems such as their work and family issues and five cases (2.32%) gave up the course ). All the parameters were monitored (use of albuterol when needed per week, use of prescribed inhaled corticosteroids (beclomethasone dipropionate or equivalent dose of other inhaled corticosteroids), and emergency visits per year. Satisfaction profile (SAT-P) and asthma control test (ACT) significantly improved as seen in Table 2 and Figure 1.

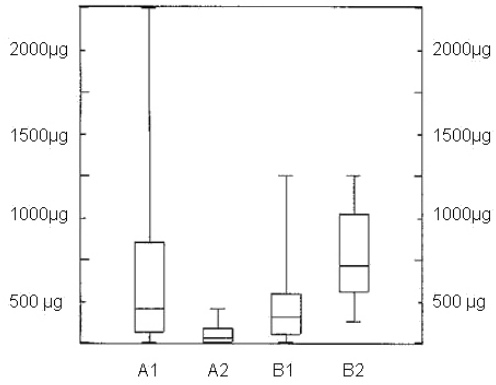


Figure 1. Use of beta adrenergic s (albuterol) before (A1) and after (A2) the course (p≥ 0.00001) and use of inhaled corticosteroids (beclomethasone dipropionate) before (B1) and after (B2) the course (p≥0.0006)

Table 2. The results obtained after the educational course

| Goal points | Before | After | |
|---|---|---|---|
| Use of inhaled corticosteroids per day (beclomethasone dipropionate) (µg) | 423.076±480.384 | 1455.128±1730.028 | p≤0.0006 |
| Use of albuterol per week (µg) | 712.82±848.273 | 91.367±16.38 | p≤0.00001 |
| Emergency visits (a year) | 1.5263±0.841 | 0.3684±0.495 | p≤0.0001 |
| SAT-P (item analysis)(mm)* | 1956± 228 | 2580± 321 | p≤0.0001 |
| ACT** | 18.0± 1.69 | 21.57± 1.38 | p≤0.0001 |

* SAT-P: Satisfaction Profile

** ACT: Asthma Control Test

## DISCUSSION

Improved adherence to treatment regimen for asthma, in general and to inhaled corticosteroids, in particular, is recognized as an important factor in reducing the mortality, morbidity and utilization of healthcare resources in asthmatic patients (10- 12).

According to the World Health Organization (WHO) report 50% of the asthmatic patients do not use their medications as recommended and the adherence rates are particularly problematic, generally ranging from 30% to 70% (13).

Many factors have been mentioned as reasons for non adherence including lack of knowledge, the high cost of medications (14) and patients' depression or anxiety (6), and unreasonable fears about asthma medications, particularly corticosteroids (14-16). Just as asthma may cause depression or anxiety, depression may provoke asthma symptoms through poor self-management including non adherence (15).

An important problem is how to monitor the adherence. Various methods can be used, each having its own advantages and disadvantages (14, 16). The simplest methods include observation of the meter dose inhaler technique, clinical judgment by the healthcare provider, self-reporting and asthma diaries. All methods are considered to be very subjective, often inaccurate and depending on the clinician/patient relationship (14, 16). More objective measures include biochemical measures, medication measurements and monitors, but they are more expensive, invasive and not readily available (14, 16). Several recommendations for research about asthma control and adherence are available (15). They recommend measuring the mood, adherence, risky behaviour and utilizing standardized and validated psychological measures, to evaluate adherence with objective measures and assure confidentiality to the participants. We have used a cohort of tools following these recommendations (SAT-P, the use of inhaled corticosteroids and albuterol, the number of visits to the emergency department and finally the Asthma Control Test, a validated questionnaire, easy to administer and well-correlated with functional parameters like FEV1) (15,16). In particular, we have tried to gain the participants' confidence using a multidisciplinary model to communicate with them. It has been reported that the patients are more truthful and open with specialist asthma nurses or respiratory therapists than with clinicians (16).

In conclusion, this project shows that health education must pass through the communication between the patients, the nurse and the physician and will improve if this relationship strengthens (9,10, 14-16). After the third meeting, the satisfaction of participants was evident and they discussed their progress in self management of the disease. These data were confirmed after the evaluation of the questionnaires about the quality of life (SAT-P) and the evaluation of ACT. The use of albuterol when necessary diminished and the number of visits to the emergency department decreased (-31.5% per year); whereas, the use of inhaled corticosteroids increased as reported in Table 2 and these changes were statistically significant. Therefore, we can assert that after the teaching ambulatory course (the School of Asthma) the adherence to treatment improved.

We are now planning to continue this project to evaluate the cost effectiveness of our structure and to reduce the hospital admissions in the next three years; only then we will assert that it is indispensable to support the Asthma Centre with an educational structure (17, 18).

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