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Journal of the Pan African Thoracic Society

Article in Press

Original Article

Adult asthma: The problem of access to disease-modifying therapy in the context of resource-limited countries

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Received: 26 July 2024
Accepted: 03 January 2025
EPub Ahead of Print: 01 April 2025
Published:

DOI
10.25259/JPATS_14_2024

Quick Response Code:

ABSTRACT

Objectives: Asthma is a major public health issue in many countries, not only due to its frequency and impact on patient's quality of life but also due to the medical and economic consequences of inadequate control of the disease. This study aimed to highlight the difficulties limiting access to basic asthma treatment.

Materials and Methods: This was a cross-sectional study lasting 6 months, from July 2023 to December 2023, involving 301 asthma patients aged 18 and over admitted to the Pneumo-Phtisiology Department of the Ignace Deen National Hospital in Conakry who agreed to take part in the study.

Results: A total of 301 cases of asthma were recorded out of a total of 2186 patients, a frequency of 13.77%. We found that 226 (75.1%) of our patients had been started on treatment (crisis and background). Among the obstacles to initiating background treatment, the majority 30 (30.67%) pointed to a lack of prescription, 12 (12%) to negligence, 12 (12%) to the high cost of medication, and 8 (10.67%) to the influence of beliefs and/or people on taking medication. In our study, we found that residence ($P = 0.020$), intolerance to non-steroidal anti-inflammatory drugs ($P = 0.000$), prescription of a background treatment ($P = 0.000$), mastery of the technique of taking medication ($P = 0.000$), and poor compliance with treatment ($P = 0.000$) influenced the level of control of the disease.

Conclusion: Our study shows that asthma control is still a major challenge for healthcare staff, with many patients on treatment reporting difficulties, mostly financial, limiting access to medication.

Keywords: Asthma, Access and background treatment, Problematic

INTRODUCTION

Asthma is a major non-communicable disease affecting both children and adults and is the most common chronic disease in children. According to the World Health Organization, an estimated 262 million people will suffer from asthma and 455,000 will die from the disease in 2019.[1]

For several years now, asthma has been a major public health issue in many countries, not only due to its frequency and impact on patient's quality of life but also due to the medical and economic consequences of inadequate control of the disease.[1] The GINA 2020 recommendations emphasize the importance of ensuring that patients with asthma are taking their medication correctly and adhering to it before considering an increase in the therapeutic load.[2] Compliance is defined as the degree to which a patient's behavior is consistent with their doctor's recommendations. It

remains a key parameter in the therapeutic management of asthmatics to ensure total control of the disease.[3]

Irregular use of disease-modifying therapies, particularly inhaled corticosteroids (ICS), remains a major obstacle to improving asthma patients' quality of life. However, it has been shown that irregular use of ICS-based treatments is ineffective in preventing asthma exacerbations, particularly those leading to hospitalization.[4] The prescribed treatment must be taken, and taken properly: "Medicines are not effective if they are not taken" said the American surgeon Everett Koop. Hippocrates had already pointed out the difficulties patients have in talking about compliance: "Many, very often, lie about the way they swallow the remedies prescribed."[2] Adequate management of asthma is still poorly assured at the national level and requires a sound knowledge of pathophysiology as well as clinical and therapeutic aspects. This is due to a combination of factors, such as the socio-economic environment specific to developing countries (low purchasing power, lack of reimbursement of drug costs), the difficulties inherent in asthma patients (influence of beliefs on the burden of asthma), and the poor distribution of healthcare coverage.[5]

The level of knowledge and attitudes of healthcare staff toward asthma can have a negative influence on the control of the disease.[6] However, the overall economic cost of asthma is considerable, both in terms of direct costs (medication, medical visits, and hospitalizations) and indirect costs (sick leave, days of absence, and premature death).[7] Several recent studies have correlated asthma-related expenditure with the severity of the disease and the quality of medical control, clearly showing that a significant proportion of the costs are due to sub-optimal control of the disease.[8] This study aimed to highlight the difficulties limiting access to disease-modifying asthma treatment.

MATERIALS AND METHODS

This was a cross-sectional study lasting 6 months, from July 2023 to December 2023, involving 301 asthma patients aged 18 and over admitted to the Pneumology Department who agreed to take part in the study. For data collection, we used the literature review, information provided by the patients, their medical records, and consultation registers. We recorded clinical variables (history, clinical signs, and level of asthma control according to GINA 2023) and therapeutic variables (beta-2 mimetic agonist, anti-leukotriene, ICS, immunomodulator, antibiotic therapy, and anti-histamines). The data collected were analyzed using the Statistical Package for the Social Sciences Statistics V. 29. We calculated means and extremes for quantitative variables and proportions for qualitative variables. Statistical analysis of the data was carried out using various univariate tests for a significant value of $P < 0.05$.

RESULTS

A total of 301 cases of asthma were recorded out of a total of 2186 patients who consulted the department, a frequency of 13.77% during our study period [Figure 1]. We determined the level of control of our respondents according to GINA 2023 recommendations and found that 43.9% of our respondents had uncontrolled asthma, 40.9% had partially controlled asthma, and 15.3% had controlled asthma. We found that 226 (75.1%) of our patients had been put on treatment. For the treatment of attacks, short-acting beta-agonists (SABA) (*Salbutamol/Ventoline®*) was used in most cases (91.2%), while 79.2% of patients were put on systemic corticosteroids (Prednisolone). For background treatment of asthma, 30.5% were on a combination of BALA/inhaled corticosteroids (ICS)(Fluticasone/Salmeterol); 11.9% on an anti-leukotriene (*Montelukast/Singulair*) and other prescriptions (25.2%), particularly antihistamines and/or antibiotics. In our study, we found that residence ($P = 0.020$), intolerance to non-steroidal anti-inflammatory drugs (NSAIDs) ($P = 0.000$), prescription of a background treatment ($P = 0.000$), mastery of the technique of taking medication ($P = 0.000$), and poor compliance with treatment ($P = 0.000$) influenced the level of control of the disease [Table 1]. Among the obstacles to initiating disease-modifying therapy, the majority 30 (30.67%) pointed to a lack of prescription, 12 (12%) to negligence, 12 (12%) to the high cost of medication, and 8 (10.67%) to the influence of beliefs and/or people on taking asthma medication [Table 2].

DISCUSSION

The incidence of asthma in our study was 13.77%. This is higher than that found by Diallo *et al.* in 2020[9] in a student environment in Guinea, which was 6.9%. This difference could be explained by the difference in the population studied and the period during which the study was carried out. Niang *et al.* 2017 in Senegal[10] found a prevalence of 11.99% in hospitals. We determined the level of control of our respondents according to the GINA 2023 recommendations and found that 43.9% of our respondents had uncontrolled asthma, 40.9% had partially controlled asthma, and 15.3%

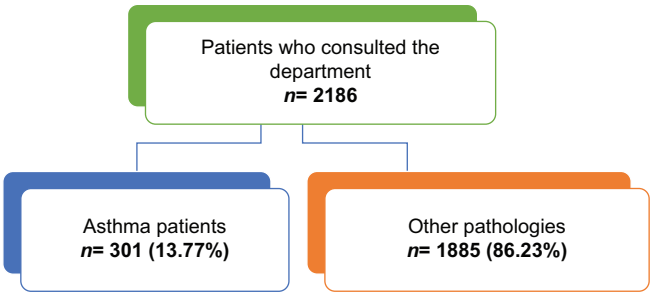

Figure 1: Frequency of asthma.

Table 1: Asthma control factors.

	Level of asthma control			*P*-value
	Controlled	Partially controlled	Uncontrolled	
Place of residence				
Conakry	40	104	102	0.020
	16.3%	42.3%	41.5%	
Outside Conakry	6	13	32	
	11.8%	25.5%	62.7%	
Smoking				
Not specified	0	1	0	0.135
	0.0%	100.0%	0.0%	
No	46	107	119	
	16.9%	39.3%	43.8%	
Yes	0	11	15	
	0.0%	42.3%	57.7%	
Alcoholism				
No	46	110	125	0.168
	16.4%	39.1%	44.5%	
Yes	0	9	9	
	0.0%	50.0%	50.0%	
Intolerance to NSAIDs				
Don't know	12	58	82	0.000
	7.9%	38.2%	53.9%	
No	4	2	8	
	28.6%	14.3%	57.1%	
Yes	30	59	44	
	22.6%	44.4%	33.1%	
Old Asthma				
Yes	23	49	62	0.611
	17.2%	36.6%	46.3%	
No	23	67	70	
	14.4%	41.9%	43.8%	
Be undergoing background treatment				
No	1	8	65	0.000
	1.4%	10.8%	87.8%	
Yes	45	111	69	
	20.0%	49.3%	30.7%	
Mastery of the correct way to take medicines				
Without treatment	2	7	65	0.000
	2.7%	9.5%	87.8%	
No	1	5	59	
	1.5%	7.7%	90.8%	
Yes	43	107	10	
	26.9%	66.9%	6.3%	
Poor compliance with medication				
No	44	112	32	0.000
	23.4%	59.6%	17.0%	
Yes	2	7	102	
	1.8%	6.3%	91.9%	

NSAIDs: Non-steroidal anti-inflammatory drugs

Table 2: Obstacles to initiating disease-modifying therapy.

	Workforce *n*=75	Percentage
Why haven't you started the basic treatment?		
No prescription	23	30.67
Does not master the gripping technique	2	2.66
Through negligence	12	16
High cost of medicines	12	16
Lack of availability of medicines	18	24
Influence of beliefs/people	8	10.67

had controlled asthma. Our results differ from those of Niang *et al*. in 2017[10] in Senegal, who reported that the assessment of the level of control showed that asthma was well controlled in 63.4% of patients, partially controlled in 25.1%, and uncontrolled in 11.5%.[10]

Several factors may contribute to poor disease control, with significant variability between different countries. In our study, we found that residence (P = 0.020), intolerance to NSAIDs (P = 0.000), prescription of a disease-modifying treatment (P = 0.000), mastery of the technique of taking medication (P = 0.000), and poor compliance with treatment (P = 0.000) influenced the level of control of the disease. Mulugeta *et al*., in 2022,[11] reported in their study that the most frequently reported predictors of uncontrolled asthma in Ethiopia were incorrect inhalation techniques, frequent use of BACA, moderate/severe asthma, comorbidities, a history of asthma exacerbations, and irregular follow-up.

These results are also important for pharmacy professionals who have to deal with problems arising from the misuse of asthma medicines. Identifying these factors is fundamental to improving asthma outcomes. We found that 75.1% of our patients received treatment. For the treatment of attacks, BACA (Salbutamol/Ventoline®) was used in 91.2% of cases. For background management of asthma, 79.2% of patients were prescribed systemic corticosteroids (Prednisolone); 30.5% a combination of BALA/CSI (Fluticasone/Salmeterol); 11.9% an anti-leukotriene (Montelukast/Singulair); and other prescriptions (25.2%), particularly antihistamines and/or antibiotics. Our results differ from those of Agostini-Ferrier *et al*. in 2020[12] in France, who reported BACA (56%) for treatment of the attack; ICS/BALA (87.5%) for background treatment; anti-leukotriene (31.3%); ICS (12%); corticosteroid spray (18.5%); and antihistamine (50%). Among the obstacles to initiating disease-modifying therapy, the majority (30.67%) pointed to a lack of prescription, (12%) neglect/under-assessment of the disease, (12%) high cost of medication, and (10.67%) the influence of beliefs and/or people on taking asthma medication. This difference could be explained in our context by a lack of availability of medicines and the high cost of those available in the country, but it also raises a concern about knowledge of and compliance with the GINA guidelines for the diagnosis and management of asthma. Nevertheless, our results are similar to those of Ouédraogo *et al*. in 2021[13] in Burkina Faso, who reported that the most widely available medicines were Salbutamol pressurized metered dose inhalers (88.1%) and Prednisone 20 mg tablets (87.4%). Their study found that no drugs for disease-modifying therapy were available in public pharmacies. The affordable drugs were Salbutamol 4 mg tablet and aminophylline 100 mg tablet. Stolbrink *et al*., in 2022,[14] reported that the affordability of medicines also differed from one country to another and from one class of medicine to another. BACA was the most affordable, but most studies reported costs of between 1 and 4 days' minimum wage for a month's supply. In Guinea, ICS generally costs between 2 and 7 days' salary, but costs can be as high as 107 working days. In contrast to ICS, systemic corticosteroids such as Prednisolone are more widely available and affordable in Guinea. The Global Asthma Initiative now recommends that all adolescents and adults with asthma should always receive ICS in addition to BACA and, ideally, a combined ICS-BALA inhaler.[15] It is essential to raise public awareness of the importance and cost-effectiveness of effective long-term treatment for this respiratory disease. Policymakers, healthcare providers, and local communities all have an important role to play in ensuring that people with asthma receive effective treatment to prevent acute attacks and minimize long-term lung damage.

CONCLUSION

Our study shows that asthma control is still a major challenge for healthcare staff. Many patients undergoing treatment reported difficulties, most of them financial, limiting access to medication. However, an analytical study is needed to gain a better understanding of the direct and indirect costs associated with asthma management in Guinea.

Acknowledgments

We thank the authorities of the CHU Ignace Deen in Conakry and the Koffi Annan University in Guinea.

Authors' contributions

BDD: Conception of the study, organization of the research project, supervision of data collection, and drafting of the manuscript; THD: Organized the research project, conceived the study design, analyzed the data, and drafted the manuscript; OH and BTP: Collected data; LMC: Conception of the study, organization of the research project, and interpreted the manuscript. All authors approved the final version of the manuscript.

Ethical approval: The study was approved by the National Ethics Committee for Health Research (NECHR) attached to the Ministry of Health (Conakry, Guinea) with approval number 51/CNERS/2023. The study was conducted in accordance with the Declaration of Helsinki, and the confidentiality of the data was guaranteed.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship: Nil.

Conflicts of interest: There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation: The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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How to cite this article: Diallo B, Diallo T, Diallo O, Touré K, Camara L. Adult asthma: The problem of access to disease-modifying therapy in the context of resource-limited countries. J Pan Afr Thorac Soc. doi: 10.25259/JPATS_14_2024