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Research Article

Profile of the Asthma Patient Monitored in the Pneumology Department of the Saint-Louis Regional University Hospital in the African Sahelian Zone

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ABSTRACT

Introduction: Asthma is a chronic disease which today constitutes a public health problem. In Senegal, the prevalence of asthma has not yet been assessed. The objective of this work was to determine the profile of asthma in the Saint-Louisian environment in the African Sahelian zone.

Material and methods: This was a prospective cross-sectional descriptive study spread over a period of 12 months. The population concerned by the study consisted of all asthmatics followed in a pneumology consultation at the Regional University Hospital of Saint-Louis.

Results: A total of 336 asthmatics, or 57% of women and 43% of men, were recorded with an average age of 38 years. The age group [35-44 years old [represented 65.5% of our patients. Among these asthmatics, 78% came from the urban area and 64.9% of the cases had a low socio-economic level. The allergic phenotype was found in 68.7% of patients. Reversible obstructive ventilatory disorder was noted in 68.2% of cases. Asthma was controlled in 52.3% of patients. Among the uncontrolled asthmatics, 54.8% had low socioeconomic status. Poor treatment adherence was noted in 160 patients.Conclusion: Through this study, it was noted a very young population of asthmatics with a clear female predominance and an allergic type phenotype.

INTRODUCTION

Known since ancient times, asthma was long considered to be a relatively mild condition. It only became worrying after the Second World War, particularly in the early 1960s when an epidemic of death was recorded in Anglo-Saxon countries [1]. According to the World Health Organization 2017, 235 million currently suffer from asthma. It is a major global health problem, affecting all age groups, with increasing prevalence in many developing countries [2]. Very few studies are available on the epidemiology of adult asthma in countries in sub-Saharan Africa. In Senegal, the overall prevalence has not yet been assessed. A few field studies were carried out in

the Pneumology Department in Fann, where the number of asthma patients constituted 9.1% of the patients seen at the consultation in 2013 [3]. The objective of our study was to determine the socio-demographic and spirometric characteristics of asthma patients followed in the pneumology department in a Saint-Louisian environment in the Sahelian zone.

MATERIALS AND METHODS

We carried out at the pneumology service of the CHR of Saint-Louis over a period of 12 months from January 2019 to December 2020, a prospective study with a descriptive aim on all patients over 15 years old, seen at least one times in consultation. The diagnosis of asthma was based on the clinical history compatible with asthma, the functional respiratory signs (cough, shortness of breath, chest tightness) and the existence of wheezing rales and obstructive ventilatory disorder reversible on spirometry. We used the ACT questionnaire to assess the level of control of our adult asthmatics. Asthma was well controlled, partially controlled and uncontrolled if the Score was 20 - 25, 15 - 19 and <15, respectively. Paraclinical and therapeutic clinical socio-demographic parameters were recorded on a form designed for this purpose and all the data were recorded. were entered and analyzed using Jamovi software version **1.6.9.0.**

RESULTS

Sociodemographic data

We included 336 patients, out of a total of 3562 patients, all pathologies combined, ie a hospital prevalence of 9.43%. The average age was 38 with extremes of 15 and 85. The 35-44 age groups represented 65.5% of our study population. A clear predominance of women (57%) was noted, i.e. a sex ratio of 1.3. Seventy-eight percent of patients were from the urban area. Students were the most represented followed by metal welders. The different professions encountered are shown in Figure 1. In our series, 218 patients (64.9%) of the study population had a low socio-economic level and 97 patients (34%) an average level, while those with a high socio-economic level represented only 6.2% (n = 21) (Figure 2).

History and comorbidities

A notion of familial asthma was found in 68.7% of patients. Persistent allergic rhinitis was noted in 76% of cases. Food allergy, eczema, nasolabial polyposis and aspirin intolerance were found in 15.5, 35, 45 and 86.7% of cases, respectively. Among our asthmatics, 25% were active smokers all men.

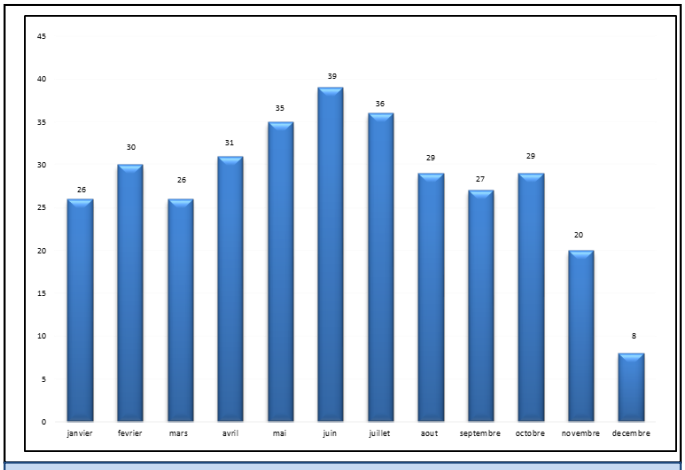

Figure 1: Distribution of asthmatics seen in consultation according to month.

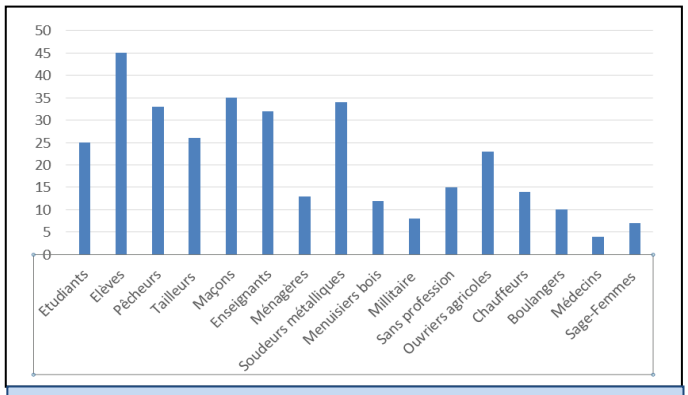

Figure 2: Distribution of asthmatics according to their profession.

Triggering factors

Exposure to dust, flu-like conditions, fog, sandstorms, incense, and exertion were the main triggers of asthma attacks in our asthmatics (Table 1).

Table 1: Distribution of the study population according to the triggering factors.

Facteurs	Effectifs	Fréquence%
Poussière domestiques	245	72,9
États grippaux	123	36,6
Encens	198	58,9
Fumée de cuisine	168	50
Tempête de sable	298	88,7
Pluie	109	32,4
Aliments	12	3,5
Aspirine et AINS	8	2,4
Froids et bruillard	156	46,4
Effort	85	25,3
Fou rire	103	30,6
Stress	126	37,5

Clinical and paraclinical data

Among asthmatics, 51% of cases consulted between May and August. The average duration of asthma was 23 years. The

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main functional signs were dominated by cough (44.4%), dyspnea on exertion (21.5%). Bronchorrhea was reported in 7.1% of patients while 27% of patients had no symptoms. Pleuropulmonary examination was normal in only 15.7% of patients. Whistling rales were found in 84.3% of cases. A chest x-ray was performed in all patients. It was normal in 46 patients (13%). All patients had undergone spirometry with a flow-volume curve, among them 68.2% had a reversible obstructive ventilatory disorder. Obstructive ventilatory disorder was non-reversible in 20.5% of patients (n = 67) and mixed in 7.5% of cases. Spirometry was normal in 10.6% of asthmatics. Among 67 patients with non-reversible obstructive ventilatory disorder, 71.6% (n = 48) presented indirect signs of pulmonary emphysema on chest x-ray (diffuse hyper-clarity, horizontalization of the ribs and an increase in the retro sternal and retro spaces cardiac) consistent with a diagnosis of COPD or chronic obstructive bronchitis.

Therapeutic data

Among our patients, 49.1% were on the combination of inhaled corticosteroids-long-acting beta-2-mimetic, 29.7% on inhaled corticosteroids alone. Our study found that 14.2% were on short-acting beta-2-mimetic. No treatment was prescribed in 1.9% of asthmatics. Asthma was only controlled in 52.3% of cases. Among the uncontrolled patients, the low socio-economic level represented 54.8%, while all the asthmatics with a high socio-economic level were controlled (Figure 3). In our study, 34.2% of patients thought that inhalers were bad and could induce fixation of asthma symptoms. Poor treatment adherence was noted in all uncontrolled asthmatics.

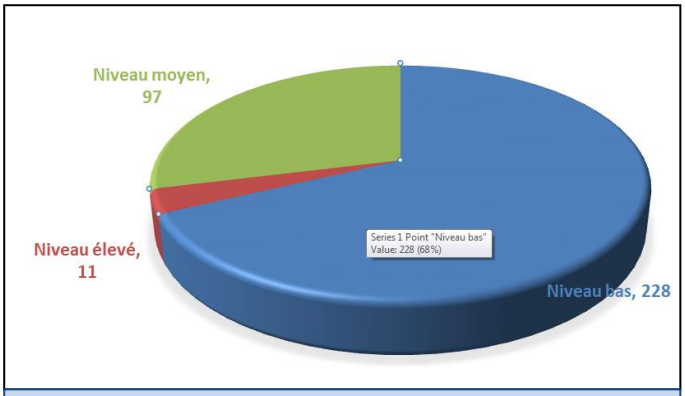

Figure 3: Distribution of patients according to socio-economic level.

DISCUSSION

Out of 3562 patients followed in our department, 336 were asthma, ie a hospital prevalence of 9.4%. This rate was close to that found by Mballo et al. in Dakar in 2020 which was 9.1%. Our results showed that adults were affected and that the most represented age group was 35-44 years old. The average age was 38 years, this result was similar to those found by Balkissou et al in Cameroon (38 years), Jana et al. in Morocco (34 years old) and Hamdi (41 years old). The female predominance found in our study was not shared by certain authors [4,5]. This female predominance has been observed by several authors [2,6,7-10]. The allergic phenotype is by far the most important in our series. Asthma was associated with familial atopy in 68.7% of cases. These same observations have been made by certain authors [2,6,7,8]. Our study population was from semi-urban areas 78% of the time. Nilson et al. had demonstrated a correlation between risk of developing asthma, living in rural and urban areas. So those who live in urban areas are more at risk of developing asthma. [11]. Other studies have found that living in the city was a factor favoring the expression of allergic diseases, This could be explained by the quality of the air in the countryside with concentrations up to six times lower in nitrogen dioxide [12,13]. The majority of our asthmatics (64.9%) had a low socio-economic level, this rate was reported by Mballo in Dakar and Benkirane in Morocco [2, 14]. This high representation could be explained by the fact that our population consisted mainly of pupils, small workers without income. This association between asthma and the low socio-economic level probably reflects the differences in exposure, in professional environment, or again to factors linked to lifestyle such as type of housing, poor hygiene, diet [15]. There is a diversity of unique or associated triggering factors in the same patient. This diversity is found in most of the studies which have examined the question [16,17]. In our Sahelian context, sandstorms are among the factors that exacerbate asthma. In our study, 51% of our patients had asthma attacks between May and August. This same observation was made by Kadija in 2018 in Morocco [17]. The chest x-ray is, in principle, essential during the first consultation of an asthmatic since it is necessary to make a differential diagnosis, however it has no interest in the follow-up of the disease. It may show pulmonary hyperinflation in times of crisis

or in asthma with continuous dyspnea. In our series, chest radiography was performed in all patients. It was abnormal in 46 patients (13%). The lesions encountered were dominated by pulmonary emphysema in 48 cases and bronchial syndromes. Spirometry with flow-volume curve was performed in all patients. The diagnosis of asthma was made in 68.2% of cases with an average Tiffenau index of 58% and the mean post-dilation FEV1 85% of the theoretical. In our series, the smoking population represents 25% (n = 84). Among them, a non-reversible obstructive ventilatory disorder was found in 71.6% (n = 48) and all presented the clinical (continuous dyspnea and bronchorrhea) and morphological signs on chest radiography compatible with a diagnosis of COPD or chronic obstructive bronchitis. In our study, 165 of the patients were on the long-acting inhaled beta-2 mimetic combination. Asthma was controlled in 52.3% of cases. In uncontrolled asthmatics, the low socioeconomic level was found in 54.8% of patients, while all asthmatics with a high socioeconomic level were all controlled (Figure 4). Of these uncontrolled asthmatics, 34.2% thought the inhalers were bad and could induce fixation of asthma symptoms. Poor treatment adherence was noted in uncontrolled patients. These findings have been reported by several authors [6,9,12,18,19]. It emerges from our study that the factors of poor control of asthma were ignorance of the disease, non-compliance with treatment, bad information received on the harmfulness of inhalers and poverty, hence the need for a good education. therapeutic through the school of asthma.

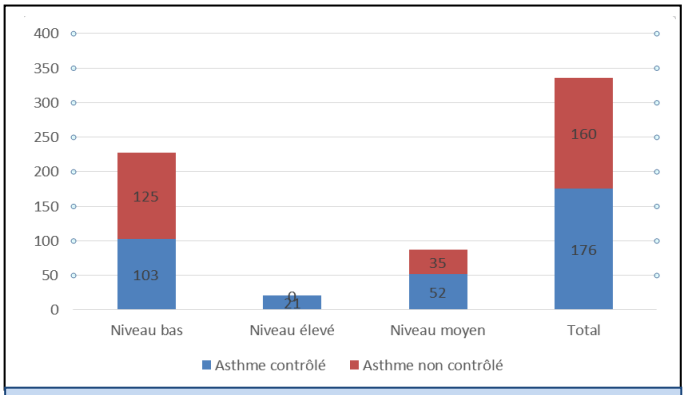

Figure 4: Level of asthma control according to the socio-economic level of patients.

CONCLUSION

Asthma is a reality in the African Sahelian zone and poses a major health problem in poor people. Through this study, it was noted a very young population of asthmatics with a female predominance.

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