World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

Check for updates

Particularities of asthma, physical activity, risk of depression and impact on work productivity

S Kechnaoui *, M Ijim, O Fikri and L Amro

Department Of Pneumology, Arrazi Hospital, Mohammed VI University Hospital, LRMS, FMPM UCA, Marrakesh Morocco.

World Journal of Advanced Research and Reviews, 2023, 20(01), 934–938

Publication history: Received on 11 September 2023; revised on 21 October 2023; accepted on 24 October 2023

Article DOI: https://doi.org/10.30574/wjarr.2023.20.1.2149

Abstract

Introduction and objective: Asthma is a chronic disease with significant psychological and socio-economic repercussions. The aim of our study is to analyze the epidemiological, clinical, spirometric and therapeutic characteristics of asthma patients. We also examined the impact of the disease on patients' physical activity, mental health and work productivity.

Methods: We report a prospective study carried out in the allergology consultation of the pneumology department of Mohamed VI University hospital of Marrakesh, between august 2022 to august 2023

Results: One hundred and twenty-six cases of asthma were collected. The average age of the patients was 40 ± 17 years [17-78 years], with a clear female predominance (64%). Only a third of patients had a stable employment. Illiteracy was noted in 10% of cases, and non-conforming housing in half. Comorbidities associated with asthma were dominated by rhinitis (80%), conjunctivitis (50%) and GERD (53%). Age of onset was 29 ± 10 years [9 - 54 years]. Clinical signs were perennial in 56% of patients and seasonal in 44%. Asthma was intermittent in 20%, mild persistent in 21%, moderate persistent in 45% and severe in 14%. Asthma was controlled in 68% of cases. Twenty percent of patients had more than two exacerbations per year. PFT showed OVD in 54% of cases, normal in 36%, and 10% of patients were uncooperative. Skin tests were positive in 47% of cases. The main treatment was mostly step 3 in 40% of cases. Respectively, 52, 41, 30, and 3 patients had a physical activity level of 1 (none), 2 (occasional), 3 (regular), or 4 (frequent). Asthma worsened at work in 20% of cases. Absenteeism was 4.1±13.9% and presenteeism 34.1±23.5%. The resulting loss of productivity was 32.4±24.3%. Almost half the patients had a depressive episode according to the PHQ-9. Respectively, 9, 15, 4 and 2 patients had mild, moderate, moderately severe and severe depression.

Conclusion: Asthma is a disease with major socio-economic consequences. The only way to control the disease and enable asthma patients to lead normal, active lives is through a comprehensive approach that includes patient education, environmental control and co-morbidities, in addition to medication.

Keywords: Asthma; Control; Comorbidities; Physical activity; Work productivity; Depression

1. Introduction

Asthma is one of the most common chronic diseases, affecting around 334 million people worldwide [1]. With psychological and socio-economic repercussions. The aim of our study is to analyze the epidemiological, clinical and therapeutic characteristics, as well as the impact of asthma on the mental health and work productivity of asthma patients followed up in the allergy consultation of the pneumology department of the Mohamed VI University Hospital Center (UHC) in Marrakesh.

* Corresponding author: S Kechnaoui

2. Materials and methods

Our study is prospective, carried out over a one-year period from August 2022 to August 2023.

A questionnaire was used in asthma patients followed in the allergology consultation of the pneumology department of Mohamed VI UHC of Marrakesh, including epidemiological, clinical and therapeutic profile of patients, the WPAI-asthma to assess patients' loss of productivity and activity limitation, and the PHQ-9 in search of depressive mood.

3. Results

3.1. Study population

The characteristics of the population are recorded in Table I. One hundred and twenty-six cases of asthma were collected. The average age of the patients was 40 ± 17 years [17-78 years], with a clear female predominance (64%). Illiteracy was noted in 10% of cases, and half of them were living in non-conforming conditions (lack of ventilation, sunlight or allergen avoidance).

Respectively, 52, 41, 30, and 3 patients had a physical activity level of 1 (none), 2 (occasional), 3 (regular), or 4 (frequent).

Table 1 Characteristics of the study population

Characteristics	Headcount (n=126)	percentage
Gender		
Male	45	36%
Female	81	64%
Stable employment		
Yes	39	31%
No	87	69%
Illiteracy		
Yes	12	10%
No	114	90%
Non-conforming housing		
Yes	64	51%
No	62	49%
Physical activity		
Level 1	52	41%
Level 2	41	33%
Level 3	30	24%
Level 4	3	2%

3.2. Pathological history

Family atopy was found in 47% of cases, rhinitis in 80%, conjunctivitis in 50%, eczema in 19%, drug allergy in 17% and food allergy in 11%.

Comorbidities associated with asthma were dominated by GERD (53%), NSP or chronic sinusitis (19%), hypertension (17%), diabetes (16%), renal insufficiency in one patient, and osteoporosis and adrenocortical insufficiency in one patient.

Forty percent of patients had at least two comorbidities.

Table 2 Distribution of patients by comorbidity

Comorbidities	Headcount (n=126)	Percentage
Yes	107	85%
No	19	15%
Two or more comorbidities	50	40%
GERD	66	53%
NSP or chronic sinusitis	24	19%
Hypertension	21	17%
Diabetes	20	16%
Renal insufficiency	1	0,8%
Osteoporosis	1	0,8%
Adrenocortical insufficiency	1	0,8%

3.3. Clinical study

Clinical signs were perennial in 56% of patients and seasonal in 44%. Asthma was intermittent, mild persistent, moderate persistent and severe in 20%, 21%, 45% and 14% of cases respectively.

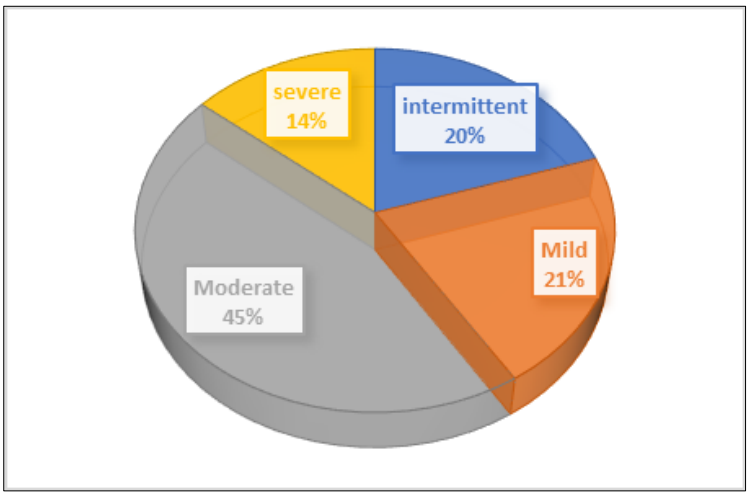

Figure 1 Distribution of patients by severity

Forty cases (32%) were uncontrolled vs. 86 cases (68%) controlled. Twenty percent of patients had more than two exacerbations per year, triggered mainly by atmospheric changes, respiratory viruses and massive exposure to dust and smoke in more than half the cases.

3.4. Para-clinical tests

PFT showed OVD in 54% of cases, normal in 36% and 10% of patients were uncooperative. Skin tests were positive in 47% of cases, with poly-sensitization in 27%. The allergens found were mainly olive tree pollen, graminae pollen, cat hair and house dust mites. Poly-sensitized patients accounted for 27% of consultants, with at least three allergen families. Sensitization to olive pollen was associated in 60% of cases, cat hair in 50%, house dust mites in 44% and grass pollen in 37%.

3.5. Treatment

The main treatment was mostly step 3 in 40% of cases, followed by step 5 (25%), step 2 (20%), step 4 (10%) and then step 1 in 4% of cases. Seasonal treatment was indicated in 2 patients.

3.6. Impact of asthma on work productivity

Only a third of patients had a stable employment (62% of them male, 38% female) asthma worsened at work in 20% of cases. Absenteeism was 4.1±13.9% and presenteeism 34.1±23.5%. The resulting loss of productivity was 32.4±24.3%.

3.7. Assessment of depressed mood

Almost a quarter (24%) of patients had a depressed mood according to the PHQ-9. Respectively, 9, 15, 4 and 2 patients had mild, moderate, moderately severe and severe depression. Only four patients were on antidepressant medication on the day of the survey. A younger average age was noted in the depressed group (30 vs. 42 years). Depressed patients were mainly on GINA level V (58% vs. 17%). More than half of depressed patients were uncontrolled (56% vs 13%).

4. Discussion

4.1. Asthma control

Forty cases (32%) were uncontrolled vs. 86 cases (68%) controlled. A younger average age was noted in the first group (34 vs. 42 years). A younger average age of asthma onset in the same group (25 vs. 30 years). Asthma was better controlled in asthmatics without comorbidities than in those with comorbidities (85% vs. 40%).

The following groups of asthmatics were less controlled: non-salaried vs. patients with a stable profession (56% vs. 89%), students (45% vs. 75%), patients with a family history of atopy (52% vs. 84%), patients with associated allergic rhinitis (62% vs. 92%), patients with a OVD vs. those with a normal PFT (58% vs. 84%), patients with a positive prick test (52% vs. 82%) and dust-sensitized patients (58% vs. 84%), patients with a positive prick test (52% vs. 82%) and dust-sensitized patients (58% vs. 84%).

4.2. Physical activity

The important association between asthma and physical activity remains underestimated and insufficiently studied. Asthma has a negative impact on physical activity. Likewise, insufficient physical activity can worsen asthma [2]. Physical activity often provokes asthma-related symptoms, so asthma patients often avoid exercise and adopt a sedentary lifestyle [4]. However, advances in disease management have been aimed at minimizing symptoms so that patients can maintain normal activity levels and achieve a good quality of life [3,4]. Accordingly, the GINA recommends that asthma sufferers engage in regular physical activity to improve their overall health [3].

In our study, the percentage of controlled patients increased with the level of physical activity, rising from 21% for patients with level 1 physical activity to 62% for patients with level 3 or 4 physical activity.

This is in line with findings in the literature, notably the study by N.S. Nyenhuis et al, which linked improved physical activity to favorable outcomes, including better overall asthma control, fewer exacerbations and lower healthcare utilization [5].

4.3. Impact of asthma on work productivity

In our study, loss of activity was statistically correlated with uncontrolled asthma (p=0.001).

These results are in line with LK. Lee et al [6] which showed that well-controlled asthma was also associated with significantly lower mean scores for work absenteeism, work presenteeism, global work impairment and activity impairment (all p<0.001).

4.4. Depression

In our study, almost a quarter of patients had a depressive mood according to the PHQ-9.

This is in line with a Korean cohort [7], which showed that the HR of depressive disorders was significantly higher in asthmatic patients than in non-asthmatic patients (HR, 1.35; 95% CI, 1.31-1.40).

Abbreviations

- GINA Global Asthma Initiative
- GERD Gastroesophageal reflux disease
- NSP Nasosinus polyposis
- OVD obstructive ventilatory disorder
- PHQ-9 Patient Health Questionnaire-9
- UHC University Hospital Center
- WPAI Work Productivity and Activity Impairment
- HR Hazard ratio

5. Conclusion

Asthma is a chronic disease with significant socio-economic consequences. It requires comprehensive management, including patient education, control of the environment and co-morbidities, in addition to medication. All of which enables asthma patients to lead normal and active lives.

Compliance with ethical standards

Acknowledgments

The author appreciates and acknowledges the support provided by her colleagues in helping with writing this article.

Disclosure of conflict of interest

No conflict of interest to disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Enilari O, Sinha S. The global impact of asthma in adult populations. Ann Glob Health 2019; 85:85.

[2] Panagiotou, M.; Koulouris, N.G.; Rovina, N. Physical Activity: A Missing Link in Asthma Care. J. Clin. Med. 2020, 9, 706. https://doi.org/10.3390/jcm9030706

[3] Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention. Updated 2023

[4] Worsnop, C.J. Asthma and physical activity. Chest 2003, 124, 421–422. [CrossRef] [PubMed]

[5] Nyenhuis, S.M.; Dixon, A.E.; Ma, J. Impact of lifestyle interventions targeting healthy diet, physical activity, and weight loss on asthma in adults: What is the evidence? J. Allergy Clin. Immunol. Pract. 2018, 6, 751–763. [CrossRef] [PubMed]

[6] Lee LK, Ramakrishnan K, Safioti G, et al. Asthma control is associated with economic outcomes, work productivity and health-related quality of life in patients with asthma. BMJ Open Resp Res 2020; 7:e000534. doi:10.1136/ bmjresp-2019-000534.

[7] Hyo Geun Choi, Joo-Hee Kim, Ji-Young Park, Yong Il Hwang, Seung Hun Jang, Ki-Suck Jung, Association Between Asthma and Depression: A National Cohort Study, The Journal of Allergy and Clinical Immunology: In Practice, Volume 7, Issue 4, 2019.