MALE SEXUAL DYSFUNCTION AMONG ASTHMATIC PATIENTS. A CROSS SECTIONAL STUDY

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ABSTRACT:

Background: *Asthma affects 1–18% of the population in different countries. Its prevalence varies worldwide but more than 5% of any investigated population suffer from asthma. The effect of asthma on sexual function of these patients is still not clear.*

Aim of the Work: *This work aims to assess the relation between asthma and erectile dysfunction, and if there is any relation between the degree of asthma severity and the severity of erectile dysfunction.*

Patients and Methods*: Our study was conducted on two groups: Group A includes 120 male asthmatic patients who were enrolled consecutively from the patients attending outpatient clinics of Helwan University hospitals and Abassya Chest diseases Hospital and group B (the control group) including 100 healthy volunteers.*

Results: *It was found that asthmatic patients included in the current study had lower International Index of Erectile Function 5 (IIEF-5) scores than the controls. Also, we found that most of cases of moderate asthma had mild erectile dysfunction (73.2%) and only 8.5% had mild to moderate erectile dysfunction. While most of those with severe asthma, 39.5% had mild ED and 31.6% had mild to moderate ED*

Conclusions: *Patients with asthma have a higher prevalence of erectile dysfunction. Education level, occupational status, asthma duration, asthma severity and control level were independent risk factors for sexual dysfunction and poor quality of life. Therefore, to improve the quality of life, patients with asthma should be evaluated holistically, their sexual functions should be taken into account and multidisciplinary approaches should be applied.*

Keywords: *Bronchial asthma, Erectile dysfunction, Male sexual function.*

INTRODUCTION:

There's a lot of evidence that sexual dysfunctions can occur with chronic illness[(1)]. Asthma, a chronic disease causes physical, mental, social, and economic losses and thus affects the quality of life of individuals[(2)]. Also, quality of life decreases due to factors such as inability to perform activities of daily living, hospitalizations, long duration of treatment, and side effects of medication[(3)]. While the quality of life has become an accepted outcome measure in medical care for patients with asthma and chronic obstructive pulmonary disease (COPD), sexuality is a topic that has rarely been studied in these patient groups, and it has not been incorporated into quality-of-life measures for asthma and COPD patients. One of the factors leading to a reduction in quality of life in people with chronic illnesses is sexual dysfunction[(4)]. Sexual dysfunction may

include desire, erection and ejaculatory disturbance that characterize the sexual response cycle and cause marked distress and interpersonal difficulty[5]. There is a well known association between sexual activity and asthma, but little quantitative information is available[1]. Some earlier publications have reported singular cases of asthma associated with erectile dysfunction in men, with the consequent impact on sexual relations[6]. It was reported that asthma may be an independent risk factor for developing erectile dysfunction, and the more severe the bronchial disease, the closer the association[7].

AIM OF THE WORK:

To assess the relation between asthma and erectile dysfunction, if the degree of asthma severity has direct relation to severity of erectile dysfunction.

PATIENTS AND METHODS:

This cross sectional study was conducted at outpatient clinics of Helwan University hospitals and the Abassya Chest diseases Hospital, during the period between September 2019 – September 2020.After the approval of the institutional Ethical Committee (Research Ethics Committee (REC) for human subject research at the Faculty of Medicine, Helwan University (Serial: 32) in 2019).

All the participants were asked to give their oral consent to participate in the study and they were assured regarding the confidentiality of the information.

Ethical approval:

This cross sectional study was conducted at outpatient clinics of Helwan University hospitals and the Abassya Chest diseases Hospital, After the approval of the institutional Ethical Committee (Research Ethics Committee (REC) for human subject research at the Faculty of Medicine, Helwan University (Serial: 32) in 2019).

Study population:

The study was conducted on two groups: Group A: (The patient group) include 120 male asthmatic patients who were enrolled consecutively from the patients attending outpatient clinics of Helwan University hospitals and Abassya Chest Diseases Hospital. Group B: (the control group) including 100 healthy volunteers who were enrolled consecutively from outpatient dermatology clinics at Cairo dermatology hospital and matched with the patient's group regarding the age and marital status.

Patients diagnosed with moderate and severe asthma (at least 1 year), who agreed to participate in the study, married and having a regular sexual activity during the last 6 months were included in our study, while patients with malignancy, significant renal, hepatic, metabolic ,endocrine disturbances , neurological diseases or diabetic patients and any other co-morbidities which may lead to sexual dysfunction as obstructive Sleep apnea will be excluded from the study. Also smokers and ex-smokers, drugs and alcohol addicts were excluded.

All patients were subjected to the following:

1. A thorough history taking and physical examination
2. Chest x-ray and pulmonary function tests.
3. Evaluation of male sexual function: Sexual function was evaluated by Arabic version of international index of erectile function questionnaire (IIEF-5) ***(8)***: The five-item scale in which each item is scored from 0 to 5 on four items and 1 to 5 on one item. It includes four of the six items from the original erectile function domain of the IIEF and

includes items on maintenance ability, erection confidence, maintenance frequency, and erection firmness in addition to a single item on intercourse satisfaction [9]. Results were categorized as follows: Severe ED (1–7), moderate ED (8–11), mild-to-moderate ED (12–16), mild (17–21), and no ED (22–25). A cutoff value of 21 was chosen so that patients with scores of 21 or less were classified as having had ED while patients with scores above 21 were not.

1- Assessing asthma severity:

Asthma severity was assessed retrospectively from the level of treatment required to control symptoms and exacerbations (Figure 1). It can be assessed once the patient has been on controller treatment for several months and, if appropriate, treatment step down has been attempted to find the patient's minimum effective level of treatment. Asthma severity is not a static feature and may change over months or years. Asthma severity can be assessed when the patient has been on regular controller treatment for three months ***GINA 2018***[10].

Assessing asthma severity based on GINA 2018:

Mild asthma:

- Well controlled with step 1 or step 2 treatment with low dose ICS or LTRA.

Moderate asthma:

- Well controlled with step 3 treatment with low dose ICS +LABA.

Severe asthma:

- Requires step 4 or step 5 treatment with medium or high dose ICS + LABA to prevent asthma from becoming uncontrolled, or asthma that remains uncontrolled despite this treatment.

Statistical Analysis:

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) Qualitative data were described using number and percent. The Kolmogorov-Smirnov test was used to verify the normality of distribution Quantitative data were described using range (minimum and maximum), mean, standard deviation, median and interquartile range (IQR). Significance of the obtained results was judged at the 5% level. The used tests were: Chi-square test, Monte Carlo correction, Student t-test

RESULTS:

This study was conducted on two groups: group A included 120 male asthmatic patients and group B included 100 healthy age matched volunteers. The two groups were comparable in age (39.07 ±10.26 SD years for group A and 38.81± 7.58 SD years for group B) and socio-demographic data. Most individuals in both groups in our study were overweight with no significant difference between the 2 groups as regard BMI. The mean BMI of the patients group was 28.21 (± 2.97 SD), while for the control group the mean BMI was 27.91 (± 2.26 SD).

Regarding the IIEF5 questionnaire most of patients 75(62.5%) showed Mild erectile dysfunction, 7 patients Moderate erectile dysfunction (5.8%), 19 patients had Mild to moderate erectile dysfunction (15.8%), 19 patients with No erectile dysfunction (15.8%). With significant difference between the control group 84(84%) had No erectile dysfunction, 16 (16%) with mild erectile dysfunction (Table 1, Diagram 1).

Table (1): Comparison between the two studied groups according to severity of ED.

Total score of male sexual dysfunction	Group A (n = 120)		Group B (n = 100)		Test of Sig.	p
	No.	%	No.	%		
No erectile dysfunction	19	15.8	84	84	χ^2= 113.249*	^{MC}p <0.001*
Mild erectile dysfunction	75	62.5	16	16		
Mild to moderate erectile dysfunction	19	15.8	0	0.0		
Moderate erectile dysfunction	7	5.8	0	0.0		
Severe erectile dysfunction	0	0.0	0	0		
Total IIEF 5 score Min. – Max. Mean ± SD. Median (IQR)	9.0 – 23.0 18.31 ± 3.22 19.0(17.0–20.50)		18.0 – 25.0 22.55 ± 1.16 22.50 (22.0–23.0)		t= 13.408*	<0.001*

χ^2: **Chi square test** MC: **Monte Carlo** p: p value for comparing between the studied groups *: Statistically significant at p ≤ 0.05

Group A: Case group

Group B: Control group

No erectile dysfunction = 22-25

Mild erectile dysfunction = 17-21

Mild to moderate erectile dysfunction = 12-16

Moderate erectile dysfunction = 8-11

Severe erectile dysfunction = 5-7

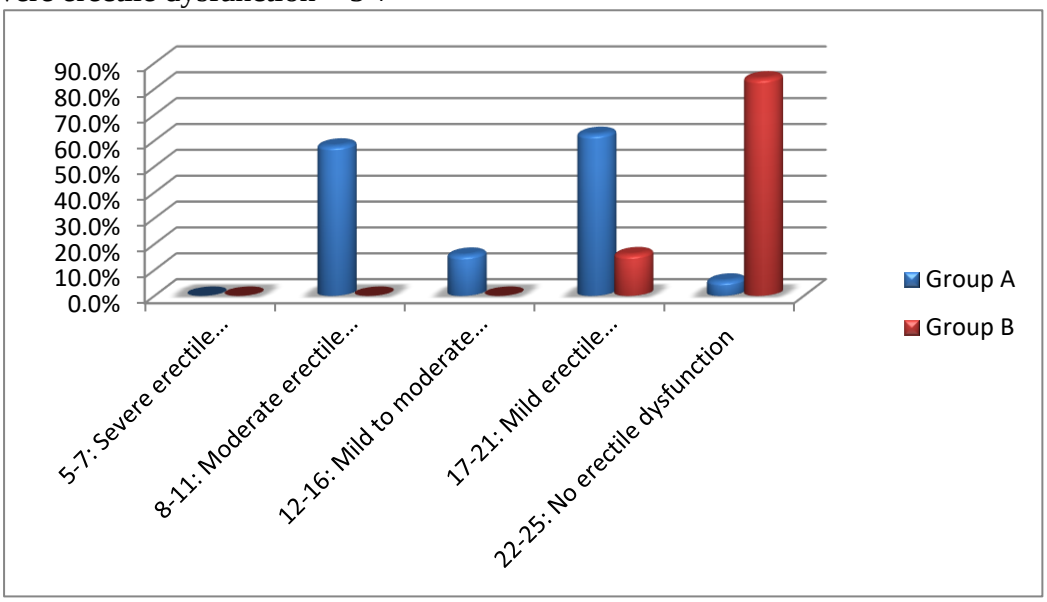

Diagram (1): Comparison between the two studied groups according to severity of ED.

In our study we assess the relationship between the severity of asthma and the degree of male sexual dysfunction and showed that most of cases of moderate asthma had mild erectile dysfunction (73.2%) and only 8.5% had mild to moderate erectile dysfunction. While most of those with severe asthma, 39.5% had mild ED and 31.6% had mild to moderate ED (Table 2, Diagram 2).

Table (2): Relationship between the severity of asthma and the degree of male sexual dysfunction

Male sexual dysfunction	Moderate Asthma (n = 82)		Severe Asthma (n = 38)		Test of Sig.	p
	No.	%	No.	%		
No erectile dysfunction (n=19)	12	14.6	7	18.4	χ^2= 92.249*	^{MC}p <0.001*
Mild erectile dysfunction (n= 75)	60	73.2	15	39.5		
Mild to moderate erectile dysfunction (n=19)	7	8.5	12	31.6		
Moderate erectile dysfunction(n=7)	3	3.7	4	10.5		
Severe erectile dysfunction(n=0)	0	0.0	0	0		

χ^2: Chi square test *: Statistically significant at $p \leq 0.05$

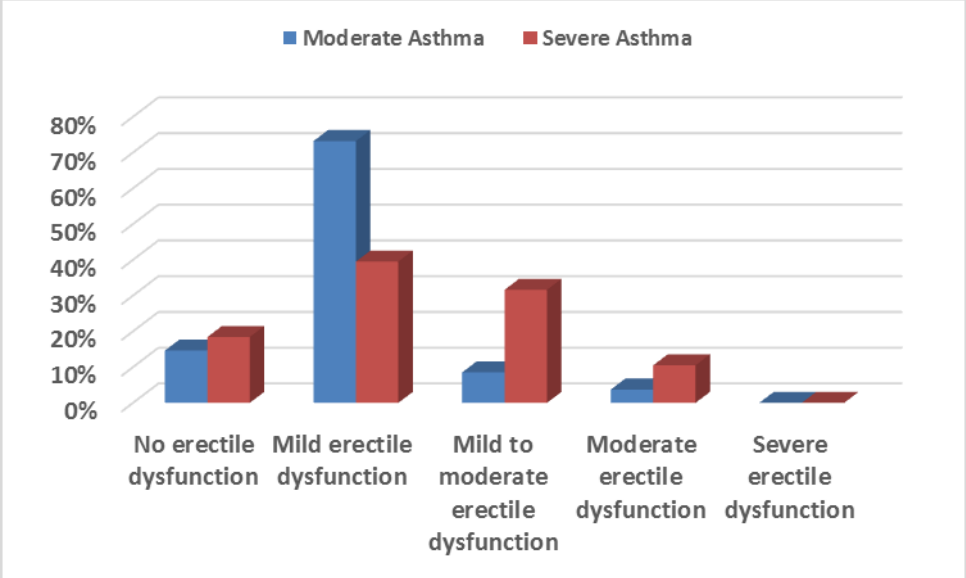

Diagram (2): Relationship between the severity of asthma and the degree of male sexual dysfunction.

Logistic regression for predictor risk factors the degree of male sexual dysfunction was done and showed that asthma is the most predictor risk factor for erectile dysfunction with (OR =3.65) and statistical significance (p value < 0.05). while other factors as age, education, employment, residence and BMI aren't predictor risk factors as OR < 1.

Table (3): Logistic regression for predictor risk factors the degree of male sexual dysfunction

Significant predictor variables	**Wald test**	**P value**	**OR**	**95 CI**
Age (years)	5.32	0.051	0.23	1.01 – 1.35
Education	3.001	0.36	0.62	0.02 – 0.36
Employment	3.36	0.71	0.35	1.04 – 1.74
Residence	1.43	0.13	0.38	1.42 – 1.78
BMI	1.25	0.54	0.95	1.24 – 1.65
Asthma	7.25	0.005*	3.65	1.82 – 5.32

OR: odds ratio 95CI: 95 confidence interval *: Statistically significant at $p \leq 0.05$

DISCUSSION:

Asthma is a common, chronic disease characterized by recurrent airway obstruction affecting 1–18% of the population in different countries and it is a major public health problem in industrialized countries. Asthma treatment aims to reduce symptoms and acute episodes and to improve pulmonary function and quality of life[11].

Quality of life is an individual's perception of his/her physical and mental health. Asthma, a chronic disease, causes physical, mental, social, and economic losses and thus affects the quality of life of individuals. Respiratory symptoms such as chronic cough, dyspnea, wheezing, and night waking affect the quality of life of patients with asthma adversely[12].

By reviewing available literature on the impact of asthma on male sexual function, it was found that there were several independent factors such as educational level, occupational status, asthma severity, and control level of asthma, all of which can affect sexual life and this was consistent with our study, as we found that there was no significant difference between the two studied groups as regards Age, Education, Employment, and Residence.

In contradicting with Kahraman et al. (2013)[13] who showed that there was a statistically significant difference between the control group and the COPD one based on educational status, illeteracy was generally more common among COPD patients 35.7% than among the control group 19% ($p = 0.017$); however, no difference was found based on the living environment ($p = 0.98$).

In our study, we found that most cases in both groups were overweight with no significant difference between the two studied groups as regard BMI.

In contrast to the study of Campos et al. (2017)[14] who reported that the group of asthma patients had a significantly higher body mass index (BMI) than the control group.

In our study, we found that there were 82(68.3%) with moderate asthma, 38 (31.7%) with severe asthma. Campos et al. (2017)[14] reported that as regards asthma severity in men there were (8.2%) with intermittent asthma, (22.9%) with Persistent mild asthma, (44.3%) with Persistent moderate asthma, (24.6%) with Persistent severe asthma. There was no significant difference as for severity of asthma.

As regards the assessment of erectile function we found that the patients included in the current study had lower IIEF-5 scores than the controls, with a significant difference between the two studied groups. As In asthma patients group, the mean total score of male sexual dysfunction 18.31 (± 3.22 SD). In the control group, the mean total score of male sexual dysfunction 22.55 (±1.16 SD).

Kaptein et al. (2008)[15] showed that male patients with asthma reported more physical problems with a negative influence on sexual desire, and a lower appreciation of sexual excitement, with a trend (p¼0.062) towards a lower appreciation of intimacy.

Meyer et al. (2002)[16] performed a study in the emergency department of a hospital in New York in which researchers asked patients attending the emergency room to assess the degree to which their asthma had adversely affected how they performed specific activities. Of these, sexual limitations were the third most frequently mentioned by the patients after climbing stairs or performing habitual household chores. Two-thirds of the patients interviewed reported sexual limitations that they associated with their asthma. These were more prevalent in patients with moderate or severe asthma compared to

those with mild asthma, and in individuals over 40 years of age compared to those under the age of 40. Women with asthma who attended the emergency room reported greater sexual dysfunction than men.

In this study, we found that there is a significant difference between the two studied groups as regards to the total score of male sexual dysfunction. The mean Total score of male sexual dysfunction 18.31 (± 3.22 SD) with a range (9-23).

Campos et al. (2017)[14] reported that there were no significant differences observed in the erectile function domain between asthma patients and healthy volunteers, although there was a decrease in other aspects such as sexual desire and overall satisfaction with intercourse in the group with respiratory disease. However, they found that 44% of asthma patients experienced ED, compared to only 25.7% of the control group, and that ED was more intense in the patient group. Age and uncontrolled asthma were also associated with a lower score on male sexual function scales in the multivariate analysis. male patients presented a better level of asthma control, and this may have led to some extent to the lack of significant impact observed in some areas of the sexual function questionnaire it should be noted that third of their patients attributed their sexual problems to their asthma, and there was a relationship between the time since asthma onset and severity, control, and deterioration of lung function.

Several studies have emphasized the effect of asthma on patients' sexual life, especially among females, as Meyer et al. (2002)[16] stated that 58% of patients' sex life was affected by asthma. Kaptein et al. (2008)[15] also found that patients were afraid of dyspnea during their sexual intercourse, and still, one out of seven talked to their physician about the problem. Therefore, the result of this study was found to match with former studies.

Chou et al. (2011)[7] showed that asthma may be a significant risk factor for ED, and the risk probably increased by asthma severity. Whether the intensive treatment for asthma can slow the development or progression of ED warrants further investigation.

Campos et al. (2017)[14] showed that men with asthma had significantly more severe erectile dysfunction with a total IIEF score of 59.5 (±12.5) compared to 64.3 (±8.2) in male controls (P<.05). An association was also observed between sexual problems and poorer asthma control.

Conclusion and Recommendations

Based on the results of our study we concluded that patients with asthma have a higher prevalence of erectile dysfunction. Education level, occupational status, asthma duration, asthma severity and control level were independent risk factors for sexual dysfunction and poor quality of life. Therefore, to improve the quality of life, patients with asthma should be evaluated holistically, their sexual functions should be taken into account and multidisciplinary approaches should be applied.

Limitations of the Study

The study had a few limitations, the small sample size as attributed to that sexuality is perceived as something confidential and people do not want to talk about it**.**

Conflict of interest*:*

There are no conflicts of interest **.**

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الضعف الجنسي عند مرضي الربو الشعبي من الرجال

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مقدمه: تلعب المشاكل الجنسية دورًا مهمًا في حياة المرضى المصابين بأمراض مزمنة. تتوفر معلومات محدودة للغاية حول تأثير الربو الشعبي على الأداء الجنسي لهؤلاء الأفراد.

هناك أدلة كثيرة على أن المشاكل الجنسية يمكن أن تصاحب الأمراض المزمنة.

قد تؤدي المتطلبات البدنية للنشاط الجنسي إلى تفاقم الإصابة بالربو الشعبي، على الرغم من أن بعض الباحثين يعتقدون أن الإثارة العاطفية وحدها تكفي لإحداث الحالة أو تفاقمها. الربو الشعبي الناجم عن ممارسة الجنس ، كما يطلق عليه.

الهدف من الدراسة: لتقييم ضعف الجنسي في المرضى الذكور المصابين بالربو الشعبي.

المرضى وطرق البحث: تشمل الدراسة ١٢٠ مريض مصاب بالربو ذكور معروفين ، والذين تم تسجيلهم على التوالي من عامة السكان والعيادات الخارجية في مستشفى جامعة حلوان و مستشفي صدر العباسية بالقاهرة واللذين تم مقارنتهم بمجموعة ضابطه مكونة من ١٠٠ حالة و تم أخذ استبيان من هؤلاء المرضى للحصول على سجل كامل لدرجة شدة الربو القصبي والعقاقير التي يتم تناولها.