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RESEARCH ARTICLE

PREVALENCE OF ANXIETY IN ADULT PATIENTS WITH ASTHMA IN A TERTIARY HOSPITAL.

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Abstract

Introduction:-Anxiety disorders have a prevalence of 14%; Psychiatric comorbidities are more common in patients with chronic respiratory diseases such as asthma and chronic obstructive pulmonary disease.
Rates of 12 to 34% prevalence of anxiety and depression disorders have been found among adult patients with asthma.
Objective:-to identify the prevalence of anxiety in adult patients with asthma.
Material and Methods: observational, transversal and analytical study.
Demographic data collection was performed, stratified by level of asthma control, according to international criteria, spirometry and application of the Beck anxiety inventory, validated in Mexico.
A sample size calculation (204 patients), bivariate and multivariate analysis with multiple logistic regression was performed.
Results: We included 204 patients, 59.8% men; 50% with controlled asthma, 34.7% partially controlled asthma and 16. 7% uncontrolled asthma.
The prevalence of anxiety was 77.5%, 18.5% with minimal anxiety, 44.3% mild, 28.8% moderate and 8.5% severe. Forty percent of patients with partially controlled asthma with moderate anxiety and 68.7% with uncontrolled asthma had moderate anxiety. The associated factors that predispose to anxiety were: uncontrolled asthma, obstructive pattern in spirometry, female sex, more than 5 years of onset of bronchial symptoms and the presence of comorbidities.
Conclusions: in this study we found a higher prevalence of anxiety in patients with asthma, than that reported in the literature.

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Psychiatric disorders have a prevalence of 10% in the general population. The most frequent are anxiety disorders (14%); It has been observed that they are more common in patients with chronic respiratory diseases such as Asthma and Chronic Obstructive Pulmonary Disease.
Higher rates of anxiety disorders (mainly panic attack) and depression have been found among adult patients with asthma, with a prevalence ranging from 9.7 to 34%; however, in the studies conducted no sample size was calculated, they are not consistent and have methodological problems, which makes it difficult to draw adequate conclusions.

The objective of this study was to establish the prevalence of anxiety in adult patients with asthma from a tertiary level hospital.

Material and Methods:-

Observational, transversal and analytical study. Adult patients with asthma belonging to the Allergy and Clinical Immunology service of the Specialties Hospital "Dr. Bernardo Sepúlveda "National Medical Center Siglo XXI IMSS.

Collection of demographic data, classification of the control level of Asthma according to international criteria, as well as Spirometry with MicroLab II 3500® equipment team, with personnel with NIOSH certification (National Institute for Occupational Safety and Helath), and application of the Inventory. of Anxiety of Beck, validated in Mexico.

Patients diagnosed with asthma were included regardless of the control level, over 18 years of age. Patients with a prior diagnosis of a psychiatric disorder, including anxiety, were excluded; as well as patients older than 65 years, patients with asthma induced by exercise, and patients with other chronic respiratory diseases.

The calculation of sample size: It was done with Open epi program support, with the formula of a proportion. Taking into account a prevalence of anxiety in asthma average of 20% for a finite population. With a total of 204 patients.

Univariate analysis was performed, for the quantitative variables with normal distribution, mean and standard deviation were used; for the quantitative variables of free median distribution and interquartile ranges. For the qualitative dichotomous frequencies and percentages. For the bivariate analysis Kruskall -wallis was used for quantitative variables of free distribution, taking 3 groups, for unrelated samples and for the dichotomous qualitative X2 of linear association, for 3 groups. Likewise, a multivariate model was used: multiple logistic regression.

Results:-

1. 204 participants were recruited, of which 59.8% men, with a median age of 37 years (28-50).
2. It was found with respect to marital status that 49% were single and 47% married.
3. Regarding schooling, 39.2% of patients with a Bachelor's degree, 31.4% with a Baccalaureate and 21.5% with basic secondary education. (Table 1)
4. Of the 204 participants, the asthma control classification was distributed as follows: 50% with controlled asthma, 34.3% with partially controlled asthma and 15.7% with uncontrolled asthma. (table 2)
5. In the uncontrolled asthma group, 56.25% men and 43.75% women, compared to the controlled asthma group with 35.3% women and 64.7% women ($p = 0.234$).
6. In relation to age, the median age of the uncontrolled asthma group was 45, with a p of 0.024 in relation to the groups of controlled and partially controlled asthma, with a median of 35 years.
7. The BMI was 27.4 Kg / m2 (24.4-30.6) in controlled and partially controlled Asthma groups and 29.3Kg / m2 (25.83-33.6) in the uncontrolled Asthma group, with a p of 0.291.
8. Regarding smoking, the group of patients with uncontrolled asthma none with active smoking, but with passive smoking in 31.25%, p of 0.003 *.
9. On exposure to biomass, 25% of the participants in the uncontrolled asthma group with exposure and only 5.8% of those in the controlled asthma group, p of 0.069 (table 1)
10. The presence of concomitant chronic degenerative diseases occurred in 35.3% of the controlled asthma group, 22.8% in the partially controlled and in 31.25% of the uncontrolled, p of 0.328.

11. In Table 2 it is observed taking into account the peripheral maneuvers that could affect the main one that the group of patients with uncontrolled asthma found the average of their baseline flowmetry was 370 ml, and the group of partially controlled asthma 450 ml , with a p of 0.002 *.
12. Postbronchodilator flowmetry was 440 ml for controlled asthma group, 470 for partially controlled and 420 for uncontrolled asthma group.
13. The median onset of bronchial symptoms was 13 (5-20) in the uncontrolled asthma group, 10 (1-22) in the partially controlled asthma group and 3 years in the uncontrolled asthma group, p of 0.000 *.
14. The score of the symptom control questionnaire (ACT) had a median of 16 points in uncontrolled asthma, and 22 in the controlled asthma group, p of 0.000 *
15. Regarding the presence of an obstructive pattern in spirometry based on the FEV1 / FVC ratio, it was 75% in the uncontrolled asthma group, 42.9% in partially controlled asthma and 43.1% in the controlled asthma group, p of 0.009 *.
16. For the bivariate analysis it was used taking into account the 3 groups of Control level of Asthma, Kruskall Wallis for the quantitative variables of free distribution and X2 of linear Association for the dichotomous ones.
17. Of the 204 patients, 77.5% presented anxiety, of which 41.5% classified anxiety as mild.
18. Multivariate analysis was performed using a multiple logistic regression model to predict Anxiety in this group of patients, taking the Anxiety as a dichotomous, present or absent outcome. (table 3)
19. In the model without adjustment, it was found that uncontrolled asthma had an OR of 1766 with an IC95% of 0.904-3.449, with a p of 0.096.
20. The presence of Obstructive Pattern by Spirometry an OR of 2.482, IC95% of1.253-4.916, p 0.009 *.
21. The female sex an OR of 2.254 (IC95% 1.087-4.673), p of 0.029 *.

Table 1:-General characteristics of the population.

Variable	**Well controlled asthma n= 102**	**Partly controlled asthma n= 70**	**Uncontrolled asthma n= 32**	**P**
Sex **a**	Female: 36(35.3%) Male : 66(64.7%)	Female: 32(45.7%) Male: 38(54.3%)	Female : 14(43.75%) Male: 18(56.25%)	0.234
Age(yo) **b**	36(28-50)	35(26-45)	45(30-54)	0.024*
Schooling**a**	Illiterate: 0(0%) Elementary school: 20(19.6%) High school 30(29.4%) College and more 52(51%)	Illiterate: (0.03%) Elementary school 10(14.3%) High school : 30(42.85%) College and more 26(37.15%)	Illiterate: 0(0%) Elementary school: 14(53.1%) High school: 4(12.5%) College and more 14(43.75%)	0.051
Month income (Pesos) **b**	7,000(2,350-15,000)	7,000(2,800-10,000)	2,500(1,900-10,000)	0.093
Smoking history **a**	Denied: 78(76.5%) Active: 10(9.8%) passive: 14(13.7%)	Denied: 42(60%) Active: 4(5.7%) Passive: 24(34.3%)	Denied: 20(62.5%) Active: 0(0%) Passive: 10(31.25%)	0.003*
Biomasss **a**	Sí: 6(5.8%) No: 94(92.2%)	Sí: 8(11.4%) No: 62(88.6%)	Sí: 8(25%) No: 24(75%)	0.069
Comorbilities **a**	Sí: 36(35.3%) No: 66(64.7%)	Sí: 16(22.8%) No; 54(77.2%)	Sí: 10(31.25%) No: 22(68.75%)	0.328
Weight(Kg) **b**	72(63.5-79.5)	70(63-81)	77(62-82)	0.880
Height (cm)**b**	161(154-165)	161(153-168)	157(153-165)	0.201
BMI Kg/m2	27.4(24.4-30.6)	27.4(24.89-29.2)	29.3(25.83-33.6)	0.291

b				

a = Frequencies and percentages, Chi X2 Linear association by linear
b = Medium, Percentiles 25 and 75, Kruskall wallis

Table 2:-Peripheral maneuvers against Asthma control levels

	Well controlled asthma n= 102	**Partly controlled asthma n= 70**	**Uncontrolled asthma n= 32**	**P**
Begin of bronchial symptoms (yo) **b**	3(0-11)	10(1-22)	13(5-20)	0.000*
FEV1/FVC (%)**a**	Obstructive: 44(43.1) Normal: 58(56.9)	Obstructive: 30(42.9) Normal: 40(57.1)	Obstructive: 24(75) Normal: 8(25)	0.009*
Flowmetry before Bronchodilator(ml) **b**	400(370-465)	450(356-500)	370(280-420)	0.002*
Flowmetry after Bronchodilator (ml) **a**	440(400-500)	470(400-520)	420(300-520)	0.146
Asthma control test :ACT(puntos) **b**	22(19-24)	19(16-21)	16(11-22)	0.000*

a = Frequencies and percentages, Chi X2 Linear association by linear
b = Medium, Percentiles 25 and 75, Kruskall wallis

Table 3:-Multiple logistic regression model to predict anxiety without adjustment.

	OR	**CI 95%**	**P**
Uncontrolled asthma	1.766	0.904-3.449	0.096
FEV1/FVC (obstructive pattern)	2.482	1.253-4.916	0.009*
Smoking history MOD(Active)	1.410	0.421-4.723	0.578
Sex(Male)	2.254	1.087-4.673	0.029*
Start bronchila symptoms (> 5 years)	2.873	1.424-5.799	0.003*
Comorbilities (Present)	1.766	0.813-3.834	0.150

Adjusted for:
• FEV1 / CFV Obstructive pattern
• Start of bronchial symptoms> 5 years
• Sex: feminine
• Chronic degenerative diseases or comorbidities: Positive

R2 of Nagelkerke 0.209 = 20.9%
Which means that this model explains 20.9% of the factors that contribute to the presence of anxiety in uncontrolled asthmatic patient

Table 4:-Multiple logistic regression model to predict adjusted anxiety

	OR	**CI 95%**	**P**
Uncontrolled asthma	3.054	1.383-6.744	0.006*
FEV1/FVC	2.884	1.328-6.048	0.007*
Start of bronchial symptoms	3.467	1.563-7.692	0.002*
Sex	2.539	1.131-5.700	0.024*
Comorbilities	1.884	0.822-4.320	0.135

Discussion:-

The results reported a higher frequency of men 59.8% compared to 40.2% of women of patients with asthma, which is different reported in the international literature, since in general in the adult stage or there may be no gender difference or it may be more frequent in women. In the PLATINO study conducted in Latin America on chronic

lung diseases such as Asthma and COPD (Chronic Obstructive Pulmonary Disease), it was found that in Mexico City, the prevalence of Asthma in women was 6.2% and in men 3.3%.

When classifying patients into 3 groups according to the level of asthma control according to the GINA Guidelines, it was found that 50% of patients had Asthma cataloged as controlled, 34.3% partially controlled asthma and 15.7% uncontrolled asthma; This corresponds to that reported in the literature, since it is expected that the controlled and partially controlled groups will be presented in a greater percentage.

The 3 groups practically very similar their characteristics, however in relation to age the median age of the group of uncontrolled asthma was 45 years, different from the other 2 groups with a p 0.024.

Likewise, there was a difference in the 3 groups in terms of smoking, especially in relation to the active, that there were no cases in the uncontrolled asthma group, with a p of 0.003. This result corresponds to what is reported in the literature because although smoking is a factor that can influence the lack of control of the disease, in general patients with uncontrolled asthma do not consume it actively, and in general it is more common than be passive.

An important factor that marks differences between the 3 groups is the onset of bronchial symptoms, finding that in patients with uncontrolled asthma, the median onset was greater, (13 years), compared to the controlled asthma group with a mean 3 years, (p = 0.) And in general it is considered that the time of onset of bronchial symptoms is related to the control of the disease, but this taking into account patients without pharmacological treatment.

The baseline peak expiratory flow (PEF) value was lower in the group of patients with uncontrolled asthma, with a median of 370 ml, (p = 0.002), which corresponds to the patient's clinical condition since there is no control of bronchial symptoms, it is expected to present a decrease in peak expiratory flow and in fact this parameter is used on an outpatient basis, to help monitor the control of the disease.

In the study population an Anxiety prevalence of 77.5% was found, in comparison to that reported in the literature with a prevalence of between 9.7% and 34%.
In relation to the Anxiety degrees determined by the score obtained in the Beck Anxiety Inventory, used in the study, it was found that 41.5% of the population presented Anxiety classified as mild.

When performing a multiple logistic regression model to try to identify the factors that can predict the presence of anxiety in patients with asthma, it was found that the presence of an obstructive pattern in spirometry is a factor involved with the presence of anxiety and this can Explain that these patients have more symptoms such as dyspnea which generates anxiety itself.

It was also found that the female sex was also a factor with a p of 0.029.
The onset of bronchial symptoms greater than 5 years was also found with a factor that predisposes to anxiety and is in relation to those found in the international literature, where it is observed that the longer the time of onset of bronchial symptoms, the greater the presence of others Psychiatric comorbidities in patients with asthma.

When adjusting the model according to the factors considered to be of clinical impact for the development of anxiety in patients with asthma, it was found that the lack of control of the disease, the presence of an obstructive pattern in spirometry, the beginning of more than 5 years of bronchial symptoms and female sex are factors that can predispose to the presence of anxiety, however, the correlation coefficient obtained for this model was only 20.9%, which means that there are other factors that may be involved in the Anxiety generation in patients with asthma

And taking into account that it can be of a socioeconomic and cultural type, such as marital status, schooling and socioeconomic income.

Conclusions:-

A comprehensive and timely assessment of patients with asthma is necessary, since it is important to initiate treatment early, as this decreases the risk of complications, including psychiatric ones. The longer the time between the onset of symptoms and the diagnosis, the greater the risk of developing anxiety.

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