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ERECTILE DYSFUNCTION PREVALENCE AND SEXUAL FUNCTION STATUS IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

N. KÖSEOĞLU,* H. KÖSEOĞLU, E. CEYLAN, H. A. ÇIMRIN, S. ÖZALEVLI AND A. ESEN

From the Pulmonary Department (NK, EC, HAC), Urology Department (HK, AE) and Rehabilitation Center (SÖ), Dokuz Eylül University Hospital, Izmir, Turkey

ABSTRACT

Purpose: We determined sexual status and erectile dysfunction (ED) in outpatients with chronic obstructive pulmonary disease (COPD).

Materials and Methods: Between October 2002 and June 2003 a total of 60 successive outpatients with COPD enrolled in the study with written informed consent. Patients completed International Index of Erectile Function (IIEF) and Duke Activity Status Index questionnaires. They also underwent physical examination including urogenital examination and pulmonary assessment with spirometry, 6-minute walk test and arterial blood sample. COPD severity was determined according to Global Initiative for Chronic Obstructive Lung Disease criteria.

Results: After exclusion criteria 53 patients were assessed for statistical analysis. Mean patient age was 63.4 ± 7.3 years. COPD severity in these patients was mild in 13.2%, moderate in 34%, severe in 49.1% and very severe in 3.8%. Nearly half of the patients (49%) had no comorbid disease for ED and the most common comorbid disease was hypertension (34%). According to the erectile function domain of IIEF 75.5% of patients were found to have ED with varying degrees (severe 28.3%, moderate 11.3%, mild to moderate 15.1% and mild 20.8%). Mean scores of all IIEF domains except sexual desire decreased with the increasing disease severity. A correlation was determined between severity and physical restrictions of COPD, and ED severity.

Conclusions: The limitation of physical activity due to COPD also diminishes the sexual function of patients. This point must be kept in mind in the evaluation of patients with COPD.

KEY WORDS: impotence; pulmonary disease, chronic obstructive; dyspnea

Chronic obstructive pulmonary disease (COPD) is a common chronic disease which diminishes the patient's functional capacity and quality of life. Although erectile dysfunction is one of the most important reasons for decrease in quality of life, to our knowledge there has been no prevalence study of erectile dysfunction in patients with COPD in large numbers using a validated and reliable diagnostic instrument until now. Only Fletcher and Martin reported a lack of erection in 6 of 20 patients with COPD.[1] We determined sexual status and erectile dysfunction in outpatients with COPD using the International Index of Erectile Function (IIEF) in this study.

METHODS

The successive outpatients who were admitted to the pulmonary department and diagnosed with COPD according to Global Initiative for Chronic Obstructive Lung Disease criteria formed the study population. After medical histories were taken, physical examinations were performed by the same pulmonologist and the same urologist on the same day. Erectile function was graded according to National Institutes of Health criteria with IIEF.[2–4] Each patient filled out the IIEF questionnaire in the outpatient room alone. The erectile function domain of IIEF was used to classify the severity of erectile dysfunction (ED).[4]

Pulmonary assessment included physical examination, spirometry study, and arterial blood sampling for partial arterial oxygen and carbon dioxide pressures (PaO_2, $PaCO_2$) as well as hematocrit. Forced vital capacity (FVC), forced expiratory volume in 1 second (FEV1), peak expiratory flow (PEF) and their percentages of predicted values for age and height (FVC%, FEV1%, PEF%) were determined with spirometry (SensorMedics Vmax 22®) according to American Thoracic Society criteria.[5] COPD severity was assessed according to Global Initiative for Chronic Obstructive Lung Disease criteria.[6,7] Smoking habits of the patients were noted as daily cigarette packs multiplied by years of smoking (pack-years) in the analyses.

The physical activities of the patients were determined with the 6-minute walk test and the self-reported questionnaires of the Duke Activity Status Index (DASI), which has high criterion validity for predicting physical activity in metabolic equivalent units in patients with COPD.[8,9] The 6-minute walk test was performed according to American Thoracic Society guidelines.[10] Walked distance × patient weight (DW) was the main parameter of this test.[11] The dyspnea scores and heart rate parameters (change in dyspnea score, change in oxygen saturation and change in heart rate) were determined during the walk test.[12,13] Additionally changes in oxygen saturations were measured by pulse oximeter (Palco Labs model 5305).

Patients with a pulmonary pathology other than COPD, COPD exacerbations within past 3 months, genital deformity interfering with vaginal penetration and low mental status were excluded from study. Also patients having no regular sexual relationship and those who underwent any pelvic surgery affecting erectile function were withdrawn from the study.

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* Correspondence: Dokuz Eylül University Medical Faculty, Sarýpýnar Sok Telelferik Mah. Mizan1 Apt. A blok D:12, Balçova, Izmir, 33540 Turkey (telephone: 905326639115; FAX: 902322599723; e-mail: nalanmd@yahoo.com).

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TABLE 1. *Patient demographics*

	All Pts	Mild COPD	Moderate COPD	Severe COPD	Very Severe COPD
Age	63.40 ± 7.30	57.57 ± 6.83	63.44 ± 8.08	64.69 ± 6.64	66 ± 1.41
Body mass index	24.90 ± 4.20	24.99 ± 5.28	26.14 ± 3.41	24.27 ± 4.32	20.12 ± 3.99
Smoking (pack-yrs)	47.10 ± 29.40	34.07 ± 16.31	55.72 ± 40.75	45.85 ± 22.03	31.00 ± 1.41
Yrs of marriage	38.30 ± 7.50	35.57 ± 5.47	38.11 ± 7.78	38.77 ± 7.96	43.00 ± 4.24
Yrs of disease*	4.64 ± 6.02	1.36 ± 2.54	3.16 ± 4.44	5.91 ± 6.68	13 ± 9.9
Intercourse/wk	1.50 ± 0.90	1.60 ± 0.80	1.80 ± 0.90	1.40 ± 0.80	1.0 ± 0

* $p < 0.01$ statistically different between groups.

TABLE 2. *Functional status of patients*

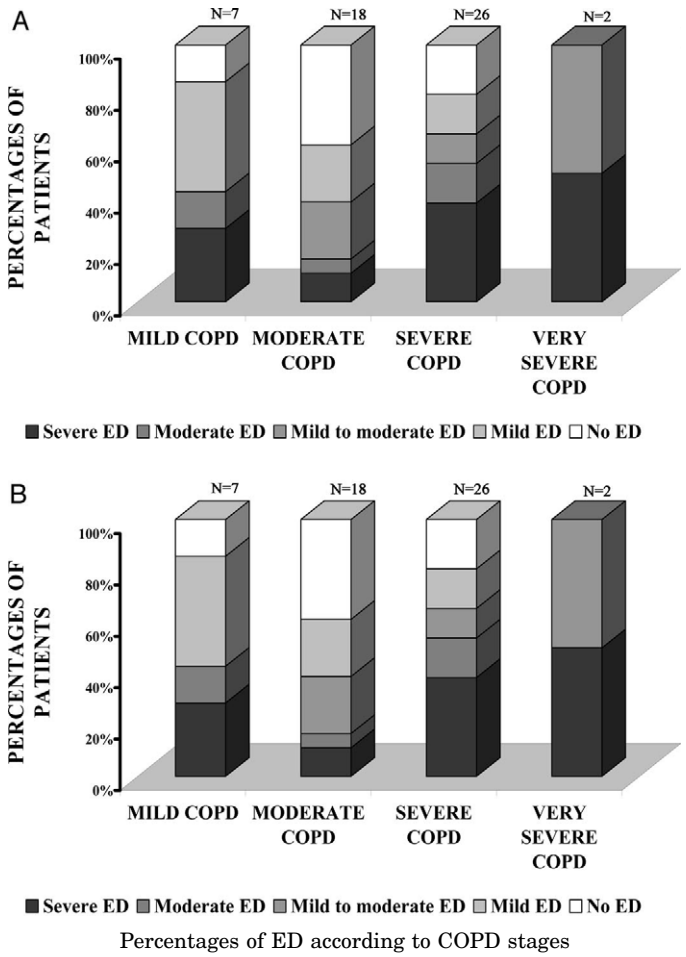
	Mild COPD	Moderate COPD	Severe COPD	Very Severe COPD
DW*	36.34 ± 21.69	32.80 ± 15.31	20.76 ± 9.69	16.50 ± 17.68
DASI score*	34.46 ± 20.71	42.45 ± 13.57	26.56 ± 13.90	31.35 ± 37.97
Change in dyspnea score	+1.29 ± 1.25	+1.39 ± 1.09	+2.35 ± 1.77	+2.00 ± 1.41
Change in heart rate	+10.43 ± 7.48	+16.61 ± 12.73	+18.35 ± 10.02	+16.00 ± 2.82
Change in oxygen saturation*	−0.14 ± 1.68	−1.39 ± 1.42	−2.77 ± 2.53	−6.00 ± 8.49

* $p < 0.05$ statistically different between groups.

TABLE 3. *Sexual function in patients with COPD*

IIEF Domains	COPD Severity			
	Mild	Moderate	Severe	Very Severe
Erectile function*	17.71 ± 8.42	22.22 ± 7.40	14.81 ± 9.48	12.50 ± 9.19
Orgasmic function*	8.29 ± 1.98	8.83 ± 2.31	6.08 ± 3.97	4.00 ± 2.83
Sexual desire	6.29 ± 1.89	6.72 ± 2.27	5.85 ± 2.31	4.00 ± 2.83
Intercourse satisfaction†	8.00 ± 4.00	9.78 ± 3.37	5.65 ± 4.60	5.00 ± 4.24
Overall satisfaction*	6.14 ± 2.91	7.61 ± 2.30	5.15 ± 2.78	5.00 ± 2.83

* $p < 0.05$ statistically different between groups.
† $p < 0.01$ statistically different between groups.



Percentages of ED according to COPD stages

Statistical analyses were performed with SPSS version 10.0®. Comparisons of groups were done with the Mann-Whitney U or Kruskal-Wallis test where appropriate. The Pearson correlation was used to investigate the relationship between sexual function and disease parameter, and the characteristics of the patients. Statistical significance was set at less than 0.05.

RESULTS

A total of 60 successive patients with COPD enrolled in this study between October 2002 and June 2003 with written informed consent. After the exclusion criteria were applied 53 of these patients were included in the data assessment. Patient demographics are shown in table 1. All of the patients had a history of smoking but 72% were former smokers and ceased for a mean of 8.4 ± 7.0 years.

There was no comorbid disease in 43% of the patients. The remaining patients had 1 or more comorbid diseases other than COPD. These comorbid diseases were hypertension (in 18), hyperlipidemia (in 12), coronary artery disease (in 8), diabetes mellitus type II (in 8), congestive heart failure (in 2) and peripheral vascular disease (in 1). Of the patients with coronary artery disease 5 had a previous myocardial infarction.

The medications taken for the treatment of COPD were combinations of inhaled anticholinergics, β-agonists and steroids, and oral theophylline. Mean treatment duration of COPD was 5.7 ± 6.3 years (range 0.5 to 30).

COPD severity in these patients was mild in 13.2%, moderate in 34%, severe in 49.1% and very severe in 3.8%. The spirometry parameters in terms of mean FVC, FVC%, FEV1, FEV1%, PEF and PEF% decreased significantly with increasing COPD severity. Mean disease duration was significantly longer with increasing COPD severity. The physical status in terms of DASI and DW scores, and change in oxygen