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Sexual dysfunctions in elderly patients hospitalized in an internal medicine ward

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Abstract

Objectives and design. Sexual activity plays a procreative role, and affects human quality of life. Its dysfunction is recognized as a marker of cardiovascular risk and a factor determining patients' compliance. The aim of this study was to determine sexual dysfunction prevalence among in - patients over 50 years old treated on an internal medicine ward. ***Material and methods***. It is a cross- sectional analytic study. One hundred and twenty-two patients over 50 years of age hospitalized in internal medicine ward were studied. All the patients completed questionnaire concerning sexual life, comorbidities, and basic physical examination parameters, including the ankle-brachial index (ABI) value. ***Results***. Seventy percent of the studied patients were sexually inactive. In comparison to the sexually active subjects, they were significantly older, more frequently female, were rarely physically active, and had lower diastolic arterial pressure, a lower average value of ABI, and lower body mass. Moreover, they significantly more frequently presented the following: arterial hypertension, paroxysmal and persistent atrial fibrillation, and an ABI value below 0.9. These patients more frequently took angiotensin- converting enzyme inhibitors, and beta- blockers. Only 52% of the studied males reported problems with erection. C***onclusions***. Seventy percent of the investigated in-patients above 50 years of age were sexually inactive. The main barriers in sexual activity in the studied individuals were erectile dysfunction and decline in libido. Because of reported erectile dysfunction was accompanied by serious cardiologic and vascular symptoms and complications, physicians should ask every patients with this problem about coexistent cardiovascular diseases, and vice versa. *Geriatria 2014; 8: 73-79.*

Keywords: sexual dysfunction, erectile dysfunction, geriatricians, internal medicine, cardiovascular risk factors

Introduction

Sexuality, regardless to age is an inseparable part of human existence which, besides its procreative meaning, is an important factor affecting quality of life [1,2]. Unfortunately, with ageing, sexual dysfunction appears, as an effect of a decrease in libido, lack of desire, or erectile dysfunction or pain during intercourse (dyspareunia). This problem is becoming more important due to human life prolongation.

Erectile dysfunction (ED) in male patients is an important factor determining the quality of life of both partners [1,3]. It is presented in less than 1% of males below the age of 30, but concerns nearly 75% of octogenarians. In the United States population, erectile dysfunction was found in 33.7% of males, and in 47% of males living in the Middle East [4]. The causes of erectile dysfunctions are divided into mechanical (technical) dysfunction, psychological disturbances, and mixed disorders. The causes of the first group are secondary to neurological, endocrinal (e.g. hypogonadism, testosterone deficiency, hyperprolactinemia), vascular, and mechanical reasons, adverse drug effects and complex disorders [5,6]. The main risk factors for erectile dysfunction in males are as follows: older age, diabetes mellitus, hypertension, dysuria (e.g. due to prostate hyperplasia), and a history of pelvic surgery [4,7]. The prescribed drugs which are most frequently related to impotence are as follows: statins, beta-blockers (with less risk for nebivo-

lol), diuretics, angiotensin-converting enzyme inhibitors (ACEI), digoxin, hypoglycemic drugs, anxiolytics, and psychotropics [8,9]. Some authors attribute them as being erectile-protective [10] some causative [7,9], and others suggest that it is not the kind of substances taken that is important, but their quantity, as an equivalent of comorbidities [8].

Sexual dysfunction in elderly patients may lead on the one hand to a decrease in self-estimation, a decrease in quality of life [11], worsening of family functioning [1,3], and depression but on the other hand may show the coexistence of serious cardiovascular risk. For this reason sexual dysfunction has become a point of interest for internists, cardiologists, angiologists and geriatricians too, and scientific councils recommend cardiovascular risk evaluation, e.g. using a RISC Score for all patients who refer to ED [12]. Such a standpoint resulted from recognizing ED as a marker of endothelial dysfunction [13], as well as cardiovascular risk, including cardiovascular event (odds ratio, OR = 3.9), ischemic heart disease (IHD) with OR = 3.43 and peripheral artery disease (PAD) with R = 2.63 [14], especially in males below the age of 60 [15,16]. Moreover, ED is recognized as an important factor determining a patient's compliance in comorbidity therapy because many subjects resign from pharmacotherapy, blaming drugs for their sexual failure [17].

Problems with sexual activity have not until now been analyzed in patients treated on an internal medicine ward, for this reason, we performed a study which addressed an evaluation of the frequency of sexual dysfunction and factors related to it among such patients.

Patients and methods

Study population

One hundred and twenty-two randomly chosen patients aged over 50 hospitalized on two internal wards of the Jan Biziel University Hospital No. 2 between March 2011 and June 2012 were included. Patients who declined to take part in the study or were unconscious were excluded from the investigation.

The patients' randomization relied on randomly choosing the examination day upon which all hospitalized patients over 50 years of age were asked to take part in the study.

Investigation method

This cross- sectional study was performed using a prepared questionnaire in which each patient was asked, e.g. about sexuality. The males were asked if they are still sexually active, what was the cause of possible lack of sexual activity, how frequently they have intercourse (less often than once a month/1-4 times per month/ more than once a week), how they estimate their own erectile function (achieve and kept for the entire duration of intercourse/ achieved, but having a problem with its maintenance/lack of erection), and do they have sexual satisfaction? Whereas, females were asked about sexual activity, the frequency of the activity, the reason for stopping or reducing sexual activity (pain during intercourse/recurrent urinary tract infections/lack of desire/other), and sexual satisfaction.

Moreover, for every subject demographic and clinical data were obtained, a physical examination was performed, and some laboratory tests were carried out. These were as follows:

a) demographic data: gender, age, place of abode (city, village), education level; clinical data: history of IHD, stroke, PAD, smoking, hypertension, diabetes mellitus, alcohol misuse, physical activity (a minimum of 30 minutes per day more than three days per week), atrial fibrillation, chronic inflammatory diseases, neoplasmatic diseases, spinal column and other neurological diseases, neuropathies, drugs taken, vascular interventions, and family history of vascular diseases;
b) a full physical examination was done, with special attention to the following: heart rhythm, presence of vascular murmurs, palpable pulse in the arteries of common carotid, femoral, popliteal, dorsal pedis, and posterior tibial arteries; body mass index (BMI) value, and waist circumference;
c) the following values for laboratory examinations recognized as atherosclerosis risk factors were assessed: blood morphology, total cholesterol, low-density lipoprotein (LDL) and high-density lipoprotein (HDL) cholesterol, triglycerides, creatinine, estimated glomerular filtration rate (eGFR) according to the Modification of Diet in Renal Disease (MDRD) equation, C-reactive protein, and fast glucose.

The ankle- brachial index (ABI) measure was performed using a sphygmomanometer and a Doppler flow meter BIDOP ES 100VX produced by Hadeco. Systolic blood pressure was determined (the Korotkoff sound first) on the brachial arteries and posterior tibial arteries and the dorsal pedis arteries of both feet. The result was calculated according to the classic method (the greater value of blood pressure in one foot artery

divided by the higher systolic blood pressure measured in the brachial artery) [18,19].

Ethics

The study protocol was approved by the local Bioethics Committee of the Nicolaus Copernicus University in Toruń and the Ludwik Rydygier *Collegium Medicum* in Bydgoszcz, Poland (KB 24/2011 on February 18, 2011). All subjects gave their informed consent prior to the start of the investigation. All procedures were conducted in compliance with the Declaration of Helsinki.

Statistics

Statistical analysis was conducted using a licensed version of statistical software STATISTICA PL 10 for Windows. Normal variable distribution was checked using the Shapiro-Wilk test. The results were mainly presented as the mean ± the standard deviation (SD) or number (n) and percentage (%). Difference significance in the estimated parameter values was checked using the t-Student's test for quantitative unpaired data and Chi-square or Fisher's exact test for qualitative variables in multi - divided tables (Tables I-II).

Table I. Demographic and clinical features of individuals who were sexually active in comparison to patients who had stopped sexual activity

Feature	Sexually active patients (n = 37; 30%)	Sexually inactive patients (n = 85; 70%)	p
Gender (males, n, %)	28 (76%)	47 (55%)	0.034
Age (years)	61 ± 6.2	72.4 ± 9.5	0.001
Education level (middle or high, n, %)	17 (46%)	34 (40%)	0.25
Smoking, n, %	6 (16%)	13 (15%)	0.90
Years of smoking (years)	17.3 ± 16.5	19.1 ± 20	0.64
Pack years	30 ± 24.8	33.2 ± 22.2	0.59
Past smoking, n, %	24 (65%)	48 (56%)	0.39
Alcohol drinking, n, %	23 (62%)	31 (37%)	0.10
Physical activity (> 3 times per week)	23 (62%)	38 (45%)	0.02
Hypertension, n,%	17 (46%)	55 (65%)	0.053
Systolic blood pressure (mmHg)	146 ± 17	140 ± 17	0.28
Diastolic blood pressure (mmHg)	90 ± 16	82 ± 11	0.02
Pulse pressure (mmHg)	56 ± 13	59 ± 13	0.41
ABI ≤ 0.9, n, %	2 (5%)	21 (25%)	0.012
ABI > 1.4, n, %	15 (41%)	29 (34%)	0.50
Mean lower ABI	1.27 ± 0.27	1.1 ± 0.47	0.04
Diabetes, n, %	5 (13%)	34 (40%)	0.004
Atrial fibrillation, n,%	5 (14%)	32 (38%)	0.01
Weight (kg)	80.4 ± 17.3	72.6 ± 14.2	0.01
High (cm)	171 ± 8	166 ± 9	0.01
BMI (kg/m^2)	27.5 ± 6.1	26.2 ± 4.1	0.16
Waist circumference (cm)	99.2 ± 14.8	98.3 ± 14.2	0.75
Family history of PAD	32 (86%)	65 (77%)	0.70
Angina pectoris, n, %	10 (27%)	33 (39%)	0.21
Past myocardial infarction, n, %	6 (16%)	22 (26%)	0.25
Past stroke, n, %	3 (8%)	9 (11%)	0.68
Aspirin, n, %	13 (35%)	44 (52%)	0.09
Statins, n, %	11 (30%)	39 (46%)	0.097
ACEI, n, %	13 (35%)	59 (69%)	0.001
Beta-blockers, n, %	13 (35%)	50 (59%)	0.016

Abbreviations: data presented as mean ± standard deviation, or number of patients (n) and %; ABI- ankle- brachial index, BMI- body mass index, PAD- peripheral artery disease, ACEI- angiotensin- converting enzyme inhibitor

Table II. Comparison of biochemical parameter values in patients sexually active and inactive

Feature	Sexually active patients (n = 37; 30%)	Sexually inactive patients (n = 85; 70%)	p
Total cholesterol (mg/dl)	238 ± 57	194 ± 49	0.053
HDL cholesterol (mg/dl)	55 ± 10.6	45 ± 16	0.27
LDL cholesterol (mg/dl)	133 ± 48	122 ± 40	0.45
Triglycerides (mg/dl)	221 ± 240	132 ± 71	0.095
White blood cell count (G/l)	10.2 ± 7.8	9.3 ± 5.4	0.50
Erythrocyte (T/l)	4.4 ± 0.8	4.2 ± 0.7	0.144
Hemoglobin (g/l)	13.3± 2.5	12.4 ± 2.4	0.077
Hematocrit (%)	38.7 ± 7.0	38.0 ± 13.0	0.77
Platelet count (G/l)	281 ± 141	262 ±102	0.41
Creatinine (mg/dl)	1.09 ± 0.6	1.3 ± 0.7	0.118
eGFR (ml/min)	94.1 ± 20.3	75.9 ± 30.2	0.001
Fast glucose (mg/dl)	111.2 ± 23.6	118.2 ± 36.1	0.373

Abbreviations: data presented as mean ± standard deviation, or number of patients (n) and %; eGFR- estimated glomerular filtration rate.

Results

Seventy five males (61%) and 47 females (39%) (p = 0.006) took part in the study. A significant percentage of subjects (n = 85,70%) had finished their sexual activity. Thirty seven (30%) patients declared at least minimal sexual activity, 16 (43%) of them had intercourse at least once per week, and 18 (49%) not less frequently than once per month. Of the non- sexually active subjects 35 (41%) had stopped their intimate life within the last five years, and 50 (59%) earlier.

Patients who were sexually active (n = 37,30%), in comparison to subjects who had finished their sexual activity (n = 85,70%), were significantly younger, more frequently male (the majority of subjects), more frequently physically active, had greater diastolic arterial pressure, a greater average ABI value for the "worse" leg, and later appearing symptoms of intermittent claudication (Table I). Moreover, these persons were taller, with greater body mass and similar BMI and waist circumference. In this group significantly more rarely presented were arterial hypertension, paroxysmal and persistent atrial fibrillation, and an ABI value below 0.9. These patients less frequently took ACEI and beta- blockers (Table I). Sexually active patients had also a greater total cholesterol plasma level and eGFR (Table II).

Among the 28/75 (37%) males who were sexually active, 24 (86%) had no problems with achieving and maintaining an erection and the remaining 4 (14%) had problems with erection maintenance but, in spite of this, sexual intercourse gave them satisfaction. Whereas, among the 47/75 (63%) males who had stopped their sexual activity, lack of erection was reported by 24 (57%) and 12 (29%) had no subjective problems with erection; the remaining males (n = 11,15%) achieved erection, but had problems with its maintenance in order to finish sexual intercourse. The differences between groups were highly statistically significant (p < 0.00001). It was not determined why males who had no problems with erection were not sexually active. Generally, sexually inactive males were older, more frequently overused alcohol, suffered from diabetes mellitus, and had an ABI value below 0.9 [12 (26%) vs. 2 (7%), p = 0.048]. Whereas, among the 38/47 (81%) females who were sexually inactive, in 31 (82%) this was caused by lack of desire. These women were significantly older, slimmer, more frequently took ACEI, had a greater mean platelet count, lower eGFR, lower systolic blood pressure in the arteries of the feet and a lower mean ABI value for both feet and for the worse leg (1.03 ± 0.41 vs. 1.4 ± 0.36, p = 0.015). In neither group of patients, both sexually active and inactive, did females and males differ significantly in relation to the estimated demographic and clinical factors presented in Table I.

In the following analysis, erectile dysfunction in 75 males was evaluated, independently of sexual activity. Males who did not achieve erection (24/75, 32%), in comparison to the remaining, i.e. without erectile dysfunction (36/75, 48%) and ones who reached erection but not for a long enough time (15/75, 20%), were statistically significant: older, more frequently drank

alcohol, more frequently had a history of diabetes mellitus, angina pectoris, and stroke; took aspirin, ACEI, and beta- blockers more often; and also had a greater value for mean platelet volume (MPV). However, they were less frequently physically active as well as having lower platelet counts.

Discussion

In our investigation we found a very common prevalence (70%) of sexual dysfunction among in-patients above 50 years of age treated on an internal medicine ward. We confirmed what had been known from references as to the relationships between sexual activity in males and the presence of atherosclerosis risk factors (older age, diabetes mellitus, arterial hypertension, lack of physical activity, alcohol misuse, worse glomerular filtration rate),[4,9,14,15,17,20-24] and markers of increased platelet function (MPV) [25] the use of ACEI and beta- blockers [7,9-11], peripheral artery disease (PAD), and cardiac (angina pectoris, history of myocardial infarction) and cerebral (past stroke) atherosclerosis manifestation (Table I). What came as surprise was the percentage of patients affected by sexual incompetence, its more frequent prevalence among females (81% vs. 63%) and in persons with lower body weight and lower total cholesterol plasma concentration (Tables I-II). These data are not reflected in other publications. Frequent lack of sexual activity in women can result in shame to admit to sexual activity in older age. During an interview conducted women much less willing to speak out about sexual activity. The explanation is therefore a psychological barrier. Lower body weight and reduced libido may be explained by endocrine and metabolic causes. As is well known steroid hormones, including estrogens are also produced by adipocytes, thus a higher content of fat in women and increased estrogen levels may result in a higher libido. Information which was also not expected was the lack of sexual activity in 44% of males who reported some level of erection, there is no reasonable explanation of this fact.

The references and our own observations show an age related prevalence of ED, which can be a problem especially for geriatricians. In our study this was reported by 52% of the studied males. Other sources show that ED concerns up to 64% of subjects below 70 years of age and 75-78% of octogenarians [2]. Erectile dysfunctions were also observed in 70% of 175 Asian referred for coronarography [16]. These patients more frequently presented multivessel coronary lesions, and ED presence was related to a 21-fold greater risk of triple-vessel IHD and an 18-fold greater risk of diffuse angiographic IHD which were not suitable for revascularization. In the context of the mentioned data observations by Zeighami Mohammadi et al. [7], who reported an 80% prevalence of ED among patients with cardiac heart failure (CHF) seem more probable than data by Alberti et al. [26], who found ED in only 30% of subjects with CHF.

Sexual activity among females, especially elderly females is rarely evaluated in the literature [1]. Somewhat surprising was our own observation concerning a greater prevalence of sexual dysfunctions among women than in men, in spite of similar values for demographic and clinical features. However, such observations are confirmed by reference to the data. Demographic, physical and mental status, is raised as an important factor in making sexual activity, which in our study group was not confirmed. Both men and women meet similar criteria, which was mentioned earlier. Sexual dysfunction concerned as much as 38% of Hong Kong Asian females aged 19-49 [1] nearly 80% of females with diabetes mellitus [27] and women who needed chronic hemodialysis [11]. The data for older females was not available. ED in the sexual partner was recognized as one among the important factors determining the presence of sexual dysfunction in women [1,3]. The remaining causes of lack of sexual activity in women were as follows: libido decrease (in 95%), lack of desire (in 60%), insufficient lubrication (in 37.5%), lack of achieving orgasm (in 63.8%), reduction in sexual satisfaction (in 55%), and pain during sexual intercourse (in 25%) [28]. In our investigation the main cause of sexual inactivity among older woman was libido decline.

The clinical importance of our observations is in showing the common prevalence of sexual inactivity both in males and females hospitalized on an internal ward and the frequent coexistence of sexual dysfunctions with cardiovascular diseases, atherosclerosis risk factors and the drugs taken (Tables I-II). This perception shows the necessity to asking the patients with ED the questions to found coexistent cardiovascular diseases symptoms, an estimation of total cardiovascular risk, and reasonable pharmacotherapy selection in every patient who goes to a doctor due to sexual dysfunction [29]. Such physician behavior, instead of a prescription for phosphodiesterase 5 inhibitor

(PDE5) would on the one hand offer the possibility of safer and more efficient ED therapy, and on the other allow the prevention of atherosclerosis progression via correct pharmacotherapy for coexistent cardiovascular diseases and an improvement in patient compliance [17]. In particular, due to the last cause, it is worth ask each patient suffering from cardiovascular disease symptoms, arterial hypertension, diabetes mellitus, and obesity about the presence or appearance of ED, because, as was mentioned, patients may blame the pharmacotherapy for their ED and resign from it [30].

Unfortunately, just as with others, we cannot avoid some study limitations. Firstly, the power of deduction is reduced by the small number of subjects, but a similar number of individuals has been included in studies by other authors. Secondly, ED presence was diagnosed according to patients' subjective criteria, and a standard questionnaire, e.g. erectile dysfunction questionnaire (IIEF-5) was not used. This resulted from respecting copyright and the need to avoid the additional costs connected with the use of validated diagnostic tools. In patients reporting ED we didn't check its cause (e.g. vascular, non- vascular, mixed), but this would have exceeded the diagnostic possibilities of the internal ward and the students' bench.

Conclusions

1. Sexual dysfunction concerns 70% of in - patients aged over 50 hospitalized on internal ward.
2. The main barriers to sexual activity in the studied individuals were erectile dysfunction and libido decline.
3. General practitioners, internists, urologists, geriatricians and sexologists admitting patients with erectile dysfunction should ask them about coexistent cardiovascular diseases and calculate their overall cardiovascular risk, e.g. using a RISC Score. Similarly, persons treated due to cardiovascular problems ought to be questioned closely about erectile and sexual dysfunction.

Conflict of interest
None

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