

SEXUAL ACTIVITY CARDIOLOGICAL SURVEY AMONG GREEK CARDIOLOGISTS

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Abstract

Background

Erectile dysfunction is often associated with cardiac disease. The psychological fear of further cardiac complications during intercourse is a factor contributing to sexual dysfunction among cardiac patients. It is important for cardiologists to be aware of these issues.

Methods

We carried out a questionnaire survey among 145 Greek cardiologists' knowledge and opinions concerning their patients' sexual activity. The questionnaire was administered by trained nurses in the cardiologists' place of work.

Results

Cardiologists tend to underestimate the scale of the problem and furthermore are not well informed about all aspects of it. This is especially true of younger members of the profession.

Conclusions

Greater awareness by physicians of this issue could enable them to contribute significantly to the quality of life of patients and their partners.

Keywords: erectile dysfunction, cardiologists, knowledge, Greece

INTRODUCTION

Erectile dysfunction (ED) is defined as an inability to attain or maintain erection of the penis sufficient to permit satisfactory sexual intercourse (NIH, 1993). This is a widespread problem. It has been estimated that 10-20 million men in the United States, mostly over 65 years of age, have severe ED and another 10 million have partial ED (NIH, 1993). The prevalence of ED of any degree in men aged 40-70 years old

was estimated to be 52% in the Massachusetts Male Aging Study, with a prevalence of 25% for moderate ED and 10% for complete ED (Feldman et al., 1994). The prevalence may be as high as 75% at age 80. However, ED is not and should not be viewed as a normal part of aging.

The causes of ED can be psychogenic, or organic (neurogenic, endocrinologic and vasculogenic) or a mixture of both, and it is

more common in men with other medical problems (Benet, 1995; Schwarz ER, 1995). In particular, ED often coexists with cardiac risk factors and coronary artery disease and an association between overt coronary artery disease and ED has been described (Sarica, 1994, Feldman, 1994; Adams, 1995; Greenstein, 1997; Fedele, 2000). Just as coronary plaque can obstruct the blood flow to the heart, its accumulation on the vessel wall can also obstruct the arteries involved in erections. Furthermore, ED may be one of the side effects of certain medications for heart disease and hypertension (Cosgrove D, 2004; DeBusk R, 2005; Cheitlin M, 2005).

Other medical conditions besides heart disease are also associated with ED. The arteries and nerves responsible for causing or maintaining an erection can be damaged by diabetes and hypertension. Thus ED is a frequent complication of diabetes (Stamler, 1993; Sarica, 1994; Fedele, 2000) and an important cause of decreased quality of life in men with diabetes (NIH Consensus Conference, 1993). Atherosclerosis can play a major role in the development of ED both in the general population and in diabetic patients (Sarica, 1994; Feldman, 1994; Adams, 1995; Fedele, 2000). However, Morley states that the main cause of impotence in older men is peripheral vascular disease of penile medium-sized arteries and postulates that the medium-sized coronary arteries are likely to suffer from the same amount of luminal obstruction (Morley, 1988). He showed that his patients with vasculogenic impotence were at much higher risk of stroke (10%) or myocardial infarction (12%) within three years. Previous work by Virag (1985) and Michal (1982) also showed a relationship between the established arterial risk factors (diabetes, smoking, hyperlipidemia, and arterial hypertension) and vasculogenic impotence (Jackson G, 2006).

Several psychological factors may be involved in the onset of sexual dysfunction. Suffering a cardiac event may, at least temporarily, alter one's body image, undermine self-esteem and cast doubt about attractiveness. Another psychological factor

is depression, which is an important cause of sexual dysfunction even in the absence of cardiac disease. Also of great importance are the patients' and their partner's fears of cardiac complications arising during intercourse (Griffith, 1973; Johnston, 1978). This anxiety accounts for a significant proportion of cases of sexual dysfunction.

A medication shown to be an effective treatment in patients with ED of various etiologies is sildenafil (Boolell, 1996). However, a high prevalence of cardiovascular events with sildenafil has been documented. The pre-licensing studies excluded people with recent stroke and heart attack, diabetes, or hypertension, thus these people have not been adequately studied (Muller, 1999). It is also important to note that sildenafil is contraindicated when the patient is taking nitrates (Steinke, 2000) because its vasodilatory effect can potentiate the hypotensive effects of nitrates (Stein R, 2002; Jackson G, 2006; Jackson G. et al, 2005).

Against this background of a numerically important problem particularly associated with heart disease, Roth et al. (2003) carried out a questionnaire survey of Israeli cardiologists on issues related to sexual activity among cardiac patients. The aim of the present study is to carry out a similar survey of Greek cardiologists to determine their general knowledge of and attitudes towards this subject.

MATERIALS AND METHODS

A questionnaire was constructed consisting of demographic and professional information (age, gender, training, place of work, experience) followed by translations and adaptations of the 17-item questionnaire published by Roth et al. (2003). These items concern the respondents' knowledge of mechanisms and cardiovascular physiology during sexual activity, knowledge of the effects of drugs, recommendations for cardiac patients with sexual dysfunction, and the interaction between cardiologist and patient. The questionnaire was administered by five nurses who had received appropriate

training. Cardiologists were recruited by approaching them at their places of work, in 11 hospitals in the Greater Athens area. Fieldwork commenced in December 2006 and was completed within three months.

Responses to items on the questionnaire were analysed in relation to the respondent's gender and years of professional experience, grouped as: below 10 years, 10-19 years and 20 years or more. The chi-squared test was used for comparison of proportions, with Yates' correction for one degree of freedom. As there were no statistically significant differences in responses between males and female cardiologists (at $p=0.05$), these results are not presented. Results were not analysed in relation to age because this factor is highly correlated with years of professional experience.

RESULTS

The questions related to sexual activity among cardiac patients were answered by all 145 respondents. Ten (6.9%) provided no demographic and other background information at all and in addition there were other missing data among these items. Gender was known for 133 respondents (106 males, 79.7%). The median age of 114 respondents was 37 years (range 25 - 58 years, except for one respondent aged 66 years). Professional experience ranged from 1 to 33 years with a median of 12 years. Table 1 gives the commonest response to each item in the total sample, as well as by years of professional experience (among the 124 respondents who gave this piece of information).

Knowledge of Erectile Dysfunction

The commonest estimate of the prevalence of ED of any degree among males aged 40-70 years was 26-40%. This response was given by 55.9% of the sample. This is an underestimate since the average frequency of ED in the literature is 52% (Roth et al., 2003). This was also the commonest estimate of the prevalence of ED among males aged 40-70 years with heart disease.

In this case, there were significant differences by years of professional experience ($p=0.008$), with the younger cardiologists tending to put the prevalence higher. The majority (57.9%) thought that the main aetiology of ED among heart patients was pharmacological, although many also answered that it was psychogenic (51.0%) or vasogenic (47.6%). Prozac was the drug most commonly stated (by 54.5%) as likely to cause ED, especially by the more experienced cardiologists ($p=0.01$). Deralin (46.9%) and thiazides (35.9%) were also mentioned frequently. Only 4.1% mentioned a connection with ranitidine (zantac). Overall, about two-thirds (67.6%) identified ischaemic heart disease as sharing common risk factors with ED. This response was particularly strongly associated with experience, with the percentage falling from 87.0% among the younger to 52.5% among the older cardiologists ($p=0.002$). Finally, the majority (62.1%) knew that nitric oxide has the most significant effect on the erectile mechanism compared with histamine, thromboxane and cytokines, but it is noteworthy that 31.0% were unable to answer this question.

Sexual activity

The commonest estimate of the average heart rate at the peak of exertion during sexual intercourse was 101-125 bpm. This estimate was given by 58.6% overall, rising from 41.3% to 75.0% with years of experience ($p=0.005$). Younger respondents almost equally often gave the estimate 126-160 bpm. The average maximal heart rate in normal individuals not receiving medication is around 120-130 bpm (Littler et al 1974; Larson et al., 1980). The average systolic blood pressure at the peak of exertion was estimated at 126-160 mmHg by the majority overall (59.3%). The energy expenditure during sexual intercourse was estimated to be 4-6 METs by 42.8%, rising from 34.8% to 55.0% with increasing experience ($p=0.011$). The younger cardiologists gave a high expenditure (11-14 METs, 13.0%) or could not answer (23.9%) more often than the cardiologists with 10 or more years'

experience (2.5% and 6.4%, respectively). Published findings indicate a systolic bloodpressure of 150-180 mmHg, equivalent to 5-6 METs (Jackson, 2000). Knowledge of the actual risk of acute myocardial infarct (MI) during or within two hours after sexual activity was poor. Almost one third could not answer, decreasing from 45.7% to 20.0% with increasing length of experience (p=0.038). The commonest estimate was 1:100 (28.3%), followed by

1:1000 (24.8%). Only 9.0% gave the correct answer of 1:1,000,000. However, even though this risk was overestimated, most cardiologists (72.4%) would not advise certain groups of patients to refrain from sexual activity and one third stated that a patient discharged home after an uncomplicated MI need not wait before resuming sexual activity. This response was much commoner among the most experienced cardiologists (p=0.006).

Table 1. Commonest responses to 17-item questionnaire by 145 cardiologists participating in the sexual activity cardiological survey, by years of professional experience.

QUESTIONNAIRE ITEM*	COMMONEST RESPONSE	TOTAL SAMPLE (N=145)	YEARS OF PROFESSIONAL EXPERIENCE		
			<10 (N=46)	10-19 (N=38)	20+ (N=40)
1. Prevalence of ED† in men aged 40-70	26-40%	55.9	58.7	44.7	55.0
2. Prevalence of ED in men aged 40-70 with heart disease	26-40%	39.3	15.2	42.1	50.0
3. Most prevalent aetiology of ED among cardiac patients	Pharmacological	57.9	76.1	57.9	55.0
4. Medications likely to cause ED	Prozac	54.5	34.8	47.4	67.5
5. Heart disease with common risk factors with ED	Ischaemic heart disease	67.6	87.0	73.7	52.5
6. Significant effect on erectile mechanism	Nitric oxide	62.1	52.2	71.1	55.0
7. Heart rate at peak of exertion during intercourse	101-125 bpm	58.6	41.3	63.2	75.0
8. Systolic blood pressure at peak of exertion	126-160 mmHg	59.3	58.7	52.6	62.5
9. Energy expended in intercourse	4-6 METs	42.8	34.8	55.3	55.0
10. Risk of acute MI‡ associated with sexual activity	Don't know	31.7	45.7	39.5	20.0
11. Patients to be advised to refrain from sexual activity	None	72.4	67.4	63.2	80.0
12. Recommended time to resumption of sexual activity	No need to wait	34.5	10.9	26.3	50.0
13. Rate of ED among your male patients with heart disease	11-25%	38.6	26.1	34.2	50.0
14. Who initiates discussion of difficulties in male patient's sexual performance	The patient	58.6	54.3	50.0	72.5
15. Who initiates discussion of difficulties in female patient's sexual performance	The patient	44.7	30.4	34.2	60.0
16. Action taken if patient has ED	Refer to specialist	57.2	56.5	39.5	62.5
17. Therapeutic strategy in case of ED	Viagra	44.8	63.0	52.6	35.0

*Complete wording of questions and response categories can be found in Roth et al. (2003; p.286).

†ED: erectile dysfunction

‡MI: myocardial infarct

Awareness and attitudes

Overall, almost equal percentages of cardiologists estimated the rate of ED among their male patients with heart disease as from 11-25% and from 26-50% (38.6% and 35.9% of respondents, respectively). There was a marginally significant ($p=0.06$) tendency for the older cardiologists to answer 11-25% more than the younger ones. Concerning who first raises the question of difficulties in a male patient's sexual performance, this was said to be the patient (58.6%) much more often than the physician (35.9%) and was rarely the patient's partner (8.3%) or the clinic nurse (4.8%). (Note that multiple responses were permitted, hence percentages total more than 100.) In contrast, a female patient raised this question only a little more often than the physician (44.8% versus 40.7%), while the female patient's partner and also the clinic nurse were involved much more often than was the case with male patients (29.7% and 14.5%, respectively). The response that the female patient first raised difficulties was commoner in the most experienced cardiologists ($p=0.012$).

When the cardiologist becomes aware that a patient has ED, the commonest course is direct referral to a specialist (57.2%) rather than attempting treatment himself or herself (24.1%). Among the acceptable treatments, the one mentioned most often was the use of Viagra (if nitrates were not being taken), mentioned by 44.8% overall but significantly less by the more experienced cardiologists ($p=0.033$).

DISCUSSION

To the best of our knowledge, this is the first time that the topic of sexual activity and sexual problems among cardiac patients from the point of view of their cardiologists' knowledge and opinions has been investigated in Greece. The prevalence of sexual dysfunction has been estimated to be 10-15% among females and 25-63% among males (Frank et al., 1978; Spector and

Carey, 1990; Feldman et al., 1994; Bortolotti et al., 1997). According to Kolman (1984), the prevalence of impotence in the normal population increases from 40% in the sixth decade to 80% in the eighth. The association with cardiac disease was emphasized by Wabrek (1980) who found that two thirds of the post myocardial infarction patients complained of sexual dysfunction preceding the infarction. The topic thus has major importance and deserves to be taken very seriously by health professionals. However, the general picture that emerges from our survey is that Greek cardiologists tend to underestimate the scale of the problem and furthermore are not well informed about all aspects of it. This is especially true of the younger members of the profession.

Reasons for underestimation of the problem include lack of understanding that ED shares common physiopathological risk factors with cardiac disease. This is supported by a study showing that many physicians still consider the basic factor behind ED to be purely psychogenic, and a significant number of them consider nitric oxide (predominantly a coronary vasodilator) to be a major contributor to ED (Rajfer et al., 1992). There is also a lack of knowledge of the relevant effects of some of the drugs commonly used by their patients. Another important factor tending to hide the true dimensions of the problem is the physicians' reluctance to raise the subject with their patients. This may arise because of unwillingness to intrude into the patient's private life, awkwardness with sexual language and discomfort at discussing sex-related topics (possibly associated with age, gender and cultural differences). Patients tend to share this discomfort. The National Health and Social Life Survey in the UK showed that only 10% of men with ED who were younger than 59 years of age actually went to their physician for consultation (Muller, 1999). However, it has been shown that, once their sexual dysfunction has been disclosed, men are willing to discuss their sexual problems with their family physician (Goodman, 1987; Kligman, 1991; Levine,

2000). It follows that a cardiac patient's special concerns should be handled with knowledge and compassion by the cardiologist sexual activity.

The non-zero risk of myocardial infarction after sexual activity and the further increase in risk among people who are less physically fit support the hypothesis that MI can be triggered by sexual activity. However, sexual activity in a familiar environment with the usual partner is as safe as any other physical exercise and therefore can be resumed at the same time. Patients and spouses may obtain reassurance from exercise testing. Sexual activity is roughly equivalent to a leisurely bicycle ride, or walking up a few flights or stairs. However, the absolute risk per hour is very low and the exposure to risk is relatively infrequent. Thus having sex once a week only increases the annual risk of myocardial infarction slightly. Counseling should focus on encouraging patients to live a physically active life and not on abstaining from sexual activity (Möller et al., 2001; Baylin A, 2007). The risk should not be ignored, but physicians must address the problem with their patients (Sorelle, 2000).

Greater awareness of the scale of the problem on the part of physician and the adoption of a sensitive approach towards its management may make an important contribution to enhancing the quality of life of the recovering cardiac patient and his or her partner.

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