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Review article

Sexual activity and cardiovascular disease, erectile dysfunction as a predictor of ischemic heart disease

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ABSTRACT

Sexual activity affects the quality of life of patients with cardiovascular disease (CVD). The purpose of this document is to highlight the fact that sexual activity of patients with stable forms of CVD and moderate exercise tolerance is safe. Delaying resumption of sexual activity is not justified and could have a negative impact on the patient's mental status and the quality of partner life. Vasculogenic erectile dysfunction is considered an independent risk factor for coronary heart disease.

Contents

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Introduction

Sexual activity (SexA) makes an important part of life of each individual and significantly affects its quality. For many patients, quality of life is more important than actual survival time. Hence, early resumption of SexA after a cardiovascular event is of importance for the patient's psychological status and partner life. Quite logically, concerns about cardiovascular event recurrence result in reduced SexA. Despite these, there is still general reluctance to address this issue in secondary prevention. The low level of information and awareness regarding this aspect of life or even feelings of embarrassment in physician–patient communication results in unnecessary delay in resuming SexA. The first document based on data from studies conducted to date and addressing this issue is the position paper of the American Heart Association (AHA) published in 2012 [1]. One of the first Czech authors systematically involved in the study of various aspects of sex in patients with cardiovascular disease (CVD) was Prof. Petr Niederle [2].

Erectile dysfunction (ED) affects up to 40% of men aged over 40, and is most often due to vascular causes. Based on the finding of an analogy between atherosclerotic involvement of the cavernous and coronary territories, it has been suggested to use this fact in predicting development of coronary heart disease (CHD).

Hemodynamic implications of sexual activity

A host of studies have investigated neuroendocrine and cardiovascular changes during sexual arousal and activity. Sexual arousal and actual intercourse (defined as heterosexual vaginal intercourse) are associated with neuroendocrine changes having an impact on the cardiovascular system. Sympathetic activation elicits changes in blood pressure (BP) and heart rate (HR). In a healthy individual at peak sexual arousal occurring within 10–15 s of orgasm, HR rises to about 130 bpm at most, with systolic BP usually not exceeding 170 mmHg [3,4]. Foreplay is associated with only a mild increase in HR and BP. Orgasm is immediately followed by a quick return to baseline arterial BP and HR. No significant difference between women and men in their cardiovascular response to SexA has been reported [5,6]. Energy expenditure during SexA is usually 3–5 metabolic equivalents (METs), a value reached, e.g., after quickly climbing 2 flights of stairs or during fast walk [7]; hence coitus is thus equivalent to mild to moderate exercise. While patients who have more difficulty attaining orgasm are most likely to achieve a higher degree of physical load, specific data are lacking. As the above values were obtained in studies including predominantly young married middle-aged men and their wives, the cohorts involved in those studies were obviously by far not representative of the entire population, particularly its older-age groups, those less physically fit as well as those with cardiovascular disease. It should thus be remembered that SexA requires 3–5 METs and each patient should be assessed based on their individual ability to tolerate such a load.

Cardiovascular risk for developing coronary heart disease, arrhythmias and sudden cardiac death during sexual activity

Coronary heart disease

Coital angina (''angina d'amour''), angina that occurs during the minutes or hours after sexual activity, represents <5% of all anginal attacks. [8]. Its prevalence in physically less active, sedentary individuals is higher than in the physically active ones. Anginal attacks are most unlikely to occur in individuals during SexA as long as these problems are not experienced during a physical activity ≥3–5 METs [9].

A meta-analysis of 4 case–control crossover studies with individuals aged 50–60 showed a 2.7-fold increase in the relative risk (RR) of intercourse-related (coital) myocardial infarction (MI) compared with other times [10]. While, in sedentary individuals, the RR is as much as triple, its value in the physically active ones is only 1.2. No significant difference in the RR of experiencing coital MI was reported between individuals with a history of MI and without a history of coronary heart disease [11].

In SHEEP (Stockholm Heart Epidemiology Programme), while the RR of physically inactive individuals was shown to be increased by a factor of 4.4, in the physically active in was decreased, being 0.7. The increased risk of myocardial infarction after sexual activity and the further increase in

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