Erectile dysfunction: a vascular disease in the field of urology

Francois Bénard, MD, FRCSC

Urology Program, Université de Montréal, CHUM - Hôpital St-Luc, Montréal, QC

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Erectile dysfunction (ED) has long been considered by some health professionals as a quality of life issue more than a medical condition. The urologic community and family doctors have gradually realized that arterial insufficiency is one of the main causes of ED and that, very often, patients consulting for ED when properly evaluated have an underlying vascular problem. Cardiovascular disease and ED often have the same etiology when endothelial dysfunction and atherosclerosis affect both coronary arteries and penile vasculature. It is well-known that ED, coronary heart disease (CHD), stroke and disseminated vascular disease share the same risks factors (i.e., age, dyslipidemia, diabetes, smoking, high blood pressure, obesity and sedentary life style).

Erectile dysfunction was also evaluated in many studies as a predictor for CHD and other vascular disease. Ponhelzer and colleagues reported on a group of men from a health-screening project in the area of Vienna who completed the International Index of Erectile Function-5 questionnaire (IIEF5) to assess the prevalence and severity of ED.[1] All men underwent a detailed health examination. The risk for CHD or stroke within 10 years depending on the severity of ED was estimated according to Framingham risk profile algorithms. In the CHD risk cohort (n = 2495; 46.2 ± 9.9 years), men with moderate to severe ED (IIEF5 5-16; n = 163) had a 65% increased relative risk for developing CHD within 10 years compared to those without ED (IIEF5 = 22-25; n = 1,784) (absolute risk: 8.0% for no ED to 13.2% for moderate to severe ED; $p < 0.001$). Relative risk increase ranged from 13.9% for those aged 30-39 years ($p = 0.121$), to 42.2% for 40 to 49 years ($p = 0.012$), 27.7% for 50 to 59 years ($p = 0.048$) and 27.1% for those aged 60 to 69 years ($p = 0.021$). In the stroke risk population (n = 644; 61.3 ± 5.1 years), men with moderate to severe ED (n = 99) were at a 43% relative risk increase for a stroke within 10 years (absolute risk: 9.3% for no ED to 13.3% for moderate to severe ED; $p = 0.041$). Increased risk varied between 38.6% for men aged 55 to 59 years ($p = 0.013$), 24.7% for 60 to 64 years ($p = 0.072$), 35.9% for 65-69 years ($p = 0.046$) and 43.6% for those aged 70 to 74 years ($p = 0.049$). In that study, moderate to severe ED, but not mild ED, was associated with a considerably increased risk for CHD or stroke within 10 years. A thorough medical surveillance, including cardiologic evaluation when indicated, treatment of risk factors and lifestyle modifications, seems advisable for men with ED.

Others have come to the same conclusions. We are all familiar with the Prostate Cancer Prevention Trial (PCPT).[2] The trial also evaluated the association of ED and subsequent cardiovascular disease. Men aged 55 years or older, randomized to the placebo group (n = 9457) at 221 centres in the United States, were evaluated every 3 months for cardiovascular disease and ED between 1994 and 2003. Proportional hazards regression models were used to evaluate the association of ED and cardiovascular disease. In an adjusted model, covariates included age, body mass index, blood pressure, serum lipids, diabetes, family history of myocardial infarction, race, smoking history, physical activity and quality of life. Of the 9457 men randomized to placebo, 8063 (85%) had no cardiovascular disease at study entry; of these men, 3816 (47%) had ED at study entry. Among the 4247 men without ED at study entry, 2420 men (57%) reported incident ED after 5 years. After adjustment, incident ED was associated with a hazard ratio of 1.25 (95% confidence interval [CI], 1.02-1.53; $p = 0.04$) for subsequent cardiovascular events during study follow-up. For men with either incident or prevalent erectile dysfunction, the hazard ratio was 1.45 (95% CI, 1.25-1.69; $p < 0.001$). For subsequent cardiovascular events, the unadjusted risk of an incident cardiovascular event was 0.015 per person-year among men without ED at study entry and was 0.024 per person-year for men with ED at study entry. This association was in the range of risk associated with current smoking or

a family history of myocardial infarction.

In another elegant study on the same topic, Montorsi and colleagues evaluated 300 consecutive patients presenting with acute chest pain and angiographically documented CHD.[3] The prevalence of ED in this group of patients was 49% (147 patients). In patients with ED and CHD, ED symptoms were reported to become clinically evident prior to CHD by 67% (99 patients) of patients. The mean time interval before onset of ED and CHD was 38.8 months (range: 1-168). From these studies, it can be concluded that ED is a harbinger of cardiovascular clinical events in some men and that ED should prompt investigation and intervention for cardiovascular risk factors.

What is the role of the urologist in evaluating a patient complaining of ED when he suspects a vascular etiology? Should he recommend further cardiac evaluation by the treating family doctor or a referral to a cardiologist? Evidently, most of us do not feel comfortable in taking charge of the cardiovascular evaluation of our patients and we have to take into account ED as a risk factor for CHD is similar to other risk factors, like current smoking or a family history of myocardial infarction. Nonetheless, it is our role to educate the patient and his referring doctor that ED may be the first sign of a more generalized vascular disease and that the risk factors of CHD should be properly evaluated and treated. The decision on further cardiac evaluation remains a decision for the treating family doctor and the cardiologist, according to the number and severity of the risk factors involved. According to the WHO guidelines, if a patient complaining of ED is first seen by a urologist, the minimum recommended evaluation after questionnaire and physical examination are a blood pressure reading and a serum evaluation of lipid and fasted glucose. We also may advise our patients that lifestyle modifications, such as avoiding smoking, maintaining an ideal body weight, eating a reduced fat diet and engaging in regular exercise, may prevent further deterioration of ED and possibly prevent other clinical manifestations of significant vascular disease.

The cardiologist, family doctor and urologist are very often treating a vascular disease when taking care of a patient complaining of ED. We all have a role in identifying the risks factors associated with this disease and to take the appropriate steps for risk modifications and for further cardiac evaluation as needed.

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This paper has been peer-reviewed.

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Correspondence: Dr. Francois Bénard, Urology Program, Université de Montréal, CHUM - Hôpital St-Luc Bureau 4304B, 1058 St-Denis, Montréal, QC H2X 3J4; fax: 514-412-7363; frbenard@videotron.ca