

Association between Erectile Dysfunction and Cardiovascular Disease

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Erectile dysfunction (ED) affects over 10 million men in the United States. It has long been understood that the cause for this disorder in many men is related to the health of the blood vessels that serve or are within the penis. Many studies have suggested that behaviors (for example, cigarette smoking) or diseases (for example, diabetes) that increase the risk of ED do so through their effects on the health of these blood vessels.

To date, however, the relationship between ED and cardiovascular disease has been poorly understood. A pressing question was whether the development of ED could be an indication of an increased risk of subsequent cardiovascular disease.

Until the PCPT was completed, there had never been a study conducted in which men were repeatedly assessed for erectile dysfunction and for cardiovascular disease.

For men in the PCPT, it was of major importance for the study investigators to assess both erectile dysfunction and cardiovascular disease. Erectile dysfunction was measured because it was important to assess the degree to which finasteride affected erections over the course of the study; it was important to appraise men considering finasteride for prostate cancer prevention of their degree of risk of development of ED. Cardiovascular disease was also measured because it was important to assess the safety of finasteride as it was being given to healthy men and it was important to be sure that there was not a significant increase in risk of other medical problems such as heart attack or stroke.

As the PCPT was ongoing, both ED and cardiovascular disease were evaluated. ED was measured using a medical assessment and a participant completed questionnaire that was available at the time the study began. Cardiovascular events (for example, heart attack or stroke) were also recorded.

In this study, only those men who received placebo were analyzed. Of the 9457 men in this group, 8063 had no cardiovascular disease at the time they began the study. Of these 8063 men, 47% had ED at the time they began the study. In those men without ED when they began the study, ED developed in 57% by five years.

When other risk factors for the development of cardiovascular disease were considered (age, obesity, high density lipoprotein, systolic blood pressure, current smoking, family history of a heart attack, and diabetes), the development of ED was significantly-related to the subsequent development of cardiovascular disease. For the group of men who had ED at the beginning of the study and those men who developed ED after they began the study, the risk of subsequent cardiovascular events was 46% greater than those men who never complained of ED. For the group of men who developed ED after they joined the study, there was a 25% greater risk of subsequent cardiovascular events than those who did not develop ED. These levels of risk were similar to the risk conferred by a family history of heart attack and slightly less than the risk conferred by currently smoking.

The implication of this analysis is that erectile dysfunction is probably an early manifestation of problems with blood vessels and delivery of blood to the penis. As this blood vessel problem is probably occurring in other blood vessels of the body, it is not surprising that men with ED are at a greater risk, for example, of heart attack in which the cause is often due to inadequate blood flow through a blood vessel that serves the heart muscle.

What does this information mean? What it doesn't mean is that all men with erectile dysfunction will have a heart or other cardiovascular problem. It does mean that they are at a greater risk.

The development of erectile dysfunction should prompt both men and their physicians to take certain actions.

The patient should consider those steps that he can take to reduce his risk of cardiovascular disease. These steps include:

1. If the man smokes tobacco, he should stop. Stopping smoking is one of the most powerful methods to reduce the risk of a heart attack or stroke.
2. If the man is obese, he should lose weight.
3. A man who has a sedentary lifestyle should work with his physician to develop a healthful exercise program.

For the physician who sees a man with erectile dysfunction, several steps are appropriate:

1. The Princeton Consensus Panel Guideline (DeBusk R, Drory Y, Goldstein I, et al. Management of sexual dysfunction in patients with cardiovascular disease: recommendations of The Princeton Consensus Panel. *American Journal of Cardiology*. 2000;86:175-81) recommends that men should be assessed for risk factors for cardiovascular disease. For a man who has no symptoms of cardiovascular disease and who has three or fewer risk factors and who has a controlled blood pressure, no further cardiovascular workup is necessary. For a man who is symptomatic, has more than three risk factors, or who has uncontrolled blood pressure, a specialized cardiovascular evaluation is suggested.
2. Physicians should counsel patients and assist them with modifying behaviors that increase their risk for cardiovascular disease.