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The Expanding Sphere of Primary Prevention for Coronary Artery Disease in Persons with Erectile Dysfunction

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To the Editor,

Erectile dysfunction (ED) is a condition of multifactorial causes. Recently, Schwatrz and Kloner published an article on ED and heart disease that brought to light the cardiovascular implications of ED.[1] The relation of ED as an early clinical sign of cardiovascular disease is indeed worth future investigation considering the fact that ED occurs 3-5 years prior to the initial acute coronary event. The second Princeton Consensus Conference in 2004 recognised ED as an early sign of cardiovascular disease and classified patients into low, intermediate and high risk groups. They also provided algorithms for approach and management of these patients.[2] Recently, a meta-analysis of cohort studies showed that the presence of ED increased the risk for CAD (relative risk: 1.48, 95% CI: 1.25-1.74; $p<0.001$).[3] This has great significance for those involved in prevention - both at primary and secondary levels. We would therefore, like to highlight the role of exercise training in primary and secondary prevention of coronary artery disease (CAD) among those with ED and also the role of the urologist in aiding prevention of CAD.

ED has been associated with CAD in both diabetics,[2] and also in the general population.[4] Various factors like type 2 diabetes mellitus, atherosclerosis, smoking, and sedentary lifestyle have been attributed to ED.[5] Elevated inflammatory markers, endothelial dysfunction, lack of physical activity, and obesity have been found to lead to ED.[5,6] Therefore, it can be hypothesized that prevention of these factors could not only prevent ED but also in the long run, CAD.

La Vignera et al. recently published a review with one of their aims being to sensitize health practitioners to the role of physical activity in ED.[6] They highlighted the importance of physical activity and exercise training on inflammatory markers, endothelial function and obesity and how they affected ED. They also reported moderate physical activity (>150 minutes/week) was sufficient for maintaining proper erectile function. Data from studies on exercise training have shown that exercise training increased the number of endothelial progenitor cells and increased the levels of total testosterone. The levels of testosterone were, however, dependent on the duration of exercise.[6] This suggests that individuals with ED, in whom nonvascular causes have been excluded, are likely to benefit from exercise training. However, more research is required with regard to the intensity, duration, and the long term benefits of exercise on ED and its role of in preventing CAD among those with vasculogenic ED. Other strategies like lifestyle modifications also play a vital role in improving sexual function thereby also controlling the risk factors for CAD.[7] Growing evidence suggests that lifestyle modifications are equally effective as pharmacological interventions for cardiovascular risk factors in improving erectile function (standardized difference in means of International Index of Erectile Dysfunction are 2.40 (95% CI, 1.19-3.61) *vs.* 3.07 (95% CI, 1.84-4.30) for lifestyle modifications and pharmacotherapy respectively).[8]

This cycle of ED leading onto CAD brings to light a new frontier for primary prevention. Therefore, the need for screening for vasculogenic ED in the community would probably be the next step in primary prevention of CAD. This has been supported in a recent population based study among diabetics, in which it was seen that screening for ED along with the traditional risk factors for cardiovascular disease could improve the identification CAD.[9]

Early diagnosis and referral of patients with vasculogenic ED to cardiologists and exercise specialists for further evaluation and exercise training is therefore the need of the hour. Integration of specialists like urologists will also be required for the general screening. Large scale population studies will be needed to identify the risk factors for ED and CAD in the community and strategies will need to be adopted for promoting preventive strategies and exercise training in these patients.

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