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## INVITED EDITORIAL

Sexual Function

# Cardiovascular disease and male sexual dysfunction

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**E**rectile dysfunction (ED) is a form of sexual dysfunction that is estimated to affect > 30% of men between the ages of 40 and 70. As a result of an improved understanding about the pathophysiology of ED and improved treatment options, an increasing number of men are presenting for evaluation than several decades ago. In fact, many of these men are visiting their health care professional for the first time with ED as their primary complaint. Most of these men are unaware of the link between ED and cardiovascular disease (CVD).

Combined with the aging male population and the increasing prevalence of CVD in industrialized societies, this correlation with atherosclerosis, CVD and ED should be recognized by healthcare professionals. The first meeting of the Princeton Consensus Conference in June 1999 represented a multispecialty collaborative forum for evaluation of the potential cardiovascular risk posed by sexual activity in at-risk patients. Eleven years later, the third Princeton Consensus met in November 2010 and focused on the predictive value of vasculogenic ED in assigning cardiovascular risk in men of all ages, with the primary objective being development of an approach to cardiovascular risk assessment in younger men with ED and no known CVD. The role of testosterone in erectile function and cardiovascular health and the utility of testosterone replacement therapy were also examined.

An intense spotlight has been focused on these very issues within the last year. This special edition of the Asian Journal of Andrology highlights specific aspects of CVD and sexual function in men and

includes contributions from recognized international leaders in the field. Selections were designed to cover the range of topics from pathophysiology to evaluation and treatment considerations.

There has been an epidemic of obesity worldwide, but especially in developed countries, in the last several decades. This increase in metabolic syndrome, present in 1/3 of US adults, is a well-recognized cause of ED. In this special edition, Maiorino *et al.*<sup>1</sup> from Naples, Italy, discuss Lifestyle Modifications and ED – What can be expected? This article builds upon their landmark randomized controlled study from 2004 that demonstrated a beneficial effect of lifestyle changes on ED in obese men. It is well-recognized that metabolic conditions lead to a pro-inflammatory state that leads to endothelial dysfunction by impairing nitric oxide production. The focus on weight loss, exercise, smoking cessation and a healthy diet can be helpful in preventing further declines in ED, and may even improve erectile function in very early cases.

Papagiannopoulos *et al.*<sup>2</sup> from Chicago, IL, USA address the increasing number of men under the age of 40 years who are presenting with ED. While the men were previously thought to have psychogenic ED, it is increasingly recognized that an organic etiology is commonly present in approximately 10%–15%. These authors note that the presence of ED can be a predictor of future CVD based on the Prostate Cancer Prevention Trial findings. Stated in simpler terms, we would agree that ED may be a marker of poor overall health. Therefore, the early recognition of ED can allow clinicians to target at-risk men for risk factor intervention and appropriate diagnostic testing.

Vlachopoulos *et al.*<sup>3</sup> of Greece note a number of circulating and imaging biomarkers are robustly associated with cardiovascular risk. The overall expectation from a biomarker in the ED setting is to enhance the optimal

management of a man with ED but no evidence of clinical atherosclerosis. The evidence is demonstrating that these biomarkers enhance risk prediction for individuals with ED is at this stage still limited for most of them. A better identification of the subsets of the ED population that require further risk stratification, as well as the initiation of randomized trials that formally test the ability of biomarkers to predict cardiovascular risk could make biomarker-guided prevention an attainable goal.

Montorsi *et al.* of Italy<sup>4</sup> note ED has been found to frequently precedes the onset of coronary artery disease (CAD), representing an early marker of subclinical vascular disease, included CAD. Its recognition is, therefore, a “window opportunity” to prevent a coronary event by aggressive treatment of cardiovascular risk factors. The artery size hypothesis has been proposed as a putative mechanism to explain the relationship between ED and CAD. Yet, in this case presentation ED developed following a coronary event, and an argument is made how this still follows the arterial size hypothesis.

Morgentaler<sup>5</sup> of Boston, MA, USA, capably explains why the current evidence does not support the belief that T therapy is associated with increased CV risk or CV mortality. On the contrary, a wealth of evidence accumulated over several decades suggests that low serum T levels are associated with increased risk, and that higher endogenous T as well as T therapy itself appear to be beneficial for CV mortality and risk.

A common concern of men and their partners is when can sexual activity be safely resumed after a CV event. However, relatively few cardiac patients receive formal sexual counseling. Steinke and from Wichita, KS, USA, and Jaarsma from Sweden<sup>6</sup> describe specific, practical strategies and evidence-based approaches for assessment and sexual counseling for all cardiac patients

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and their partners. The authors note that many couples have anxiety and fear regarding sexual needs and that an open communication is critical for determining their needs.

Finally, Kim *et al.*<sup>7</sup> from Knoxville, TN, USA provide an update regarding endovascular treatments for ED. Nearly once a week, we are asked by a patient about whether drug-eluting stents can cure their ED problem. Because they have had positive results with their coronary artery stents, it is a reasonable hope that stents to the cavernous arteries or their feeding vessels can be beneficial. Unfortunately, the etiology of vasculogenic ED is complex and multifactorial. Most patients with long-standing atherosclerotic disease will likely not be good candidates for internal pudendal artery stenting due to the diffuse nature of atherosclerotic

disease. The results of the Zotarolimus-Eluting Peripheral Stent trial were not favorable. As is often stated, further study will be necessary.

We are proud to present these highly valued authors and their thinking regarding the latest developments in the fields of sexual medicine and its relationship to CVD. This is a most unique and provocative issue that will heighten the awareness of all readers to sexual medicine and its link to concomitant disease states, and moreover, its potential improvement with lifestyle changes that require significant emphasis in the practice of medicine.

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