

IS NEEDED DOBUTAMINE STRESS ECHOCARDIOGRAPHY FOR THE DETECTION OF CORONARY ARTERY STENOSIS IN WOMEN?

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By American Heart Association statistics updated at 2013, more than one in three female adults has some form of cardiovascular disease (CVD). Since 1984, the number of CVD deaths for females has exceeded those for males.¹⁾ Twenty-six percent of women age 45 and older who have an initial recognized myocardial infarction (MI) die within a year compared with 19% of men. In addition, 64% of women who died suddenly of coronary heart disease (CHD) had no previous symptoms.¹⁾

Compared with men, women have a 10-to-20-year lag in the initial presentation of CHD. Additionally, women do not always present with the “characteristic” pattern of chest pain. Other typical symptoms for women during their initial presentation include shortness of breath, diaphoresis, nausea, epigastric pain, and fatigue.²⁾

Therefore, early diagnosis of CHD is very important to women to reduce the incidence of disease and prevent sudden cardiac death. However it is not easy. Electrocardiograms and exercise electrocardiograms are less sensitive to changes in women, making it more difficult for providers to diagnose CHD.³⁾

What was worse, as seen on angiography, plaque in women tends to be distributed diffusely, rather than in clumps, causing women’s angiographic studies to be misinterpreted as “normal”.⁴⁾

We also should consider the risk factors that affect women specifically. For example, men tend to develop hypertension at younger ages than women; women’s low-density lipoprotein cholesterol levels tend to be lower than men’s at younger ages but exceed those of men in advanced age; and while triglyceride levels decline in men of middle and older age, they rise in

women of comparable ages.⁵⁾

Therefore, the addition of the measurement of C-reactive protein to screening based on lipid levels may provide an improved method of identifying women at risk for cardiovascular events.⁶⁾

The wide spread use of echocardiography has contributed to the early recognition of several distinct cardiac diseases in women as well as management of women-specific cardiac diseases.⁷⁾ Dobutamine stress echocardiography (DSE) is being used for the diagnosis of CHD especially patients with chest pain who cannot exercise adequately. And this test showed sensitivity for detecting coronary artery disease of 78% and a specificity of 93%.⁸⁾ DSE is especially useful in women with chest pain because as we commented above, electrocardiograms and exercise electrocardiograms are less sensitive to changes in women and this test has been relatively high sensitivity and specificity.

In this issue, DSE and exercise electrocardiography for the detection of CHD in women with chest discomfort was compared.⁹⁾ About two hundred consecutive female patients who presented with chest pain in outpatient clinic, and who underwent treadmill exercise test (TET), DSE and coronary angiography were included for the study. The results showed that the sensitivity and specificity were higher with DSE (70.4, 94.6%) than TET (53.7, 73.6%) for detection of > 50% CHD. And DSE also showed greater diagnostic accuracy than TET by > 75% CHD criteria, and in subsets of patient with intermediate pre-test probability.

This manuscript is meaningful to compare TET and DSE in Korean women with chest pain. And as a result, demonstrated that DSE had a higher diagnostic value than TET in Korean female patients and as the disease severity of CHD worse, DSE had greater diagnostic accuracy than TET. However, the sensitivity of both tests to diagnose CHD in this study appeared

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lower than previously reported values.^{10,11)} The reason may be lower prevalence of CHD, and much more patients with only single vessel disease in this study compared to previous study.

One thing we should know is that, enrolled all patients came to outpatient clinic with vague chest pain, so the possibility of severe CHD was somewhat low. If they had more severe CHD such as unstable angina or MI, the test results might be different from those of this manuscript. Recently, multimodality imaging such as CT, MRI and strain analysis also showed very high sensitivity and specificity for detection of CHD. And the prevalence of women's CVD had been increased gradually. Therefore, much more studies regarding best diagnostic accurate modality in women's heart field, management and prognosis should be performed continuously.

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