Evaluation of chest pain in women

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The goal of chest pain evaluation in women or men is to determine whether the chest pain is related to myocardial ischaemia secondary to flow-limiting epicardial coronary artery stenosis. Of course, the only way to determine whether an individual patient has any coronary artery stenosis is to perform coronary angiography. All non-invasive tests are designed to detect myocardial ischaemia and do not detect coronary artery disease that is not flow limiting.

Experienced clinicians evaluating chest pain in men and women have long recognized that clinical features of the history and ECG changes during chest pain can differentiate myocardial ischaemia from chest pain due to other causes. Let me illustrate by two extreme examples. (1) Forty-year-old pre-menopausal women with no known risk factors having chest discomfort not related to effort, not relieved by rest or sublingual glycerol trinitrate and not associated with ECG changes during chest pain. This patient population has a low probability for myocardial ischaemia as the cause of the chest pain. However, in any one patient, probability serves as a guideline but the guideline may not be relevant in an individual patient. Clinical judgment may be required to further evaluate this type of patient with some non-invasive stress test to detect the presence or absence of myocardial ischaemia. In this particular patient population dobutamine stress echo might be more useful than an exercise test since transient ECG changes during exercise may be 'false positives'.

(2) Sixty-five-year-old post-menopausal women with multiple risk factors having chest discomfort on effort, relieved by rest and sublingual glycerol trinitrate whose ECG during chest pain shows transient ST segment changes. This patient population has a high probability for ischaemic cardiac pain secondary to flow-limiting epicardial coronary disease. In this group of patients the ECG during exercise will be transiently abnormal as will most other non-invasive stress tests used to detect myocardial ischaemia. One could make an argument for bypassing all non-invasive tests in this patient group and proceed directly to coronary angiography if there is clinical suspicion that revascularization might be the therapy of choice.

All sorts of efforts are being made to develop a rational strategy for evaluating chest pain in women. The NHLBI has sponsored a trial entitled ‘WISE’ (Women’s Ischaemia Syndrome Evaluation) in which two non-invasive methods are being evaluated i.e., brachial artery ultrasound and dobutamine stress echocardiography in post-menopausal women complaining of chest discomfort. Demographics so far have indicated that the majority of these women have slightly elevated cholesterols, slightly elevated LDLs, most are white, most are older than 65 years, the majority have slight elevation of blood pressure, a minority have diabetes, a minority are smokers and a majority have a strong family history of coronary disease. Coronary angiography is the major end point but coronary flow reserve and coronary endothelial function are also being assessed. Results of this trial are not yet known.

In this issue, Säfström and colleagues[11] provide information from an observational study of 200 post-menopausal women who are part of the multicenter FRISC study performed in Sweden[21]. The patients considered in this report represent a selected group of women with a chest pain history highly suggestive of myocardial ischaemia (unstable angina), transient ECG changes suggesting myocardial ischaemia, enzyme release suggesting myocardial necrosis and transient ST segment shifts compatible with ischaemia during exercise testing.