Increased carotid intima-media thickness as a predictor for abnormal myocardial perfusion by dobutamine echocardiography for patients with diabetes mellitus type 2

Thesis

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Summary

Diabetes is a fast-growing health problem in Egypt with a significant impact on morbidity and mortality. Coronary artery disease (CAD) remains a leading cause of death among patients with diabetes mellitus (DM). However, many patients with diabetes who have CAD are asymptomatic and may sustain a myocardial infarction as their presenting symptom of CAD, So screening tests for early diagnosis of CAD may lead to early treatment and therefore improved outcomes. So, many clinical trials were conducted searching for a valid and reliable screening method. However, no sufficient evidence could be concluded from these trials which make an open field for more research. Carotid intima media thickness (CIMT) is one method of calculating plaque burden by assessing the level of arterial thickening present. CIMT used as a noninvasive marker of atherosclerotic disease was also linked to an increased risk of subsequent CV event.

The study aimed to correlate myocardial perfusion abnormality by dobutamine echocardiography to carotid intima- media thickness in diabetic patient free from cardiac symptoms.

A case control study, including fifty diabetic patients with or without other risk factors and twenty- five non diabetic patients with or without risk factors was constructed.

All patients in the study were subjected to full history taking and complete physical examination, ECG, Echocardiography, carotid IMT and carotid plaques assessed by carotid ultrasonography, were done to all subjects. Myocardial perfusion imaging by dobutamine echocardiography was offered to all patients.

The study revealed the following:

A) The prevalence of abnormal myocardial perfusion by DSE in asymptomatic diabetic patients was about 8%.

B) A positive correlation between CIMT and duration of DM and age, but there is no significant correlation between CIMT and duration of HTN or smoking.

C) The CIMT was significantly elevated in relation to wall motion score index (P value= 0.022) in the patients with positive stress study.

D) Carotid plaque was significantly elevated in relation to wall motion score index (P value= 0.028**)** in the patients with positive stress study.

E) CIMT was positively correlated with HR exercise (r=-372), (P value< 0.050) but not correlated with HR at rest (r=0.209).

F) CIMT was positively correlated with EF% at rest (r=-0.298) and also with EF% at exercise (r=-0.296), with a statistical significance, (P value< 0.050)

So based on the results of the study, which show that despite the low prevalence of silent ischemia, increased CIMT and carotid plaque were significantly related to the presence and extent of abnormal myocardial perfusion, it is reasonable to recommend using CIMT to identify asymptomatic patients with type 2 diabetes at higher risk for CAD and indirect predictor for CV events.

So, the strategy of routine screening for CAD in patients with type 2 diabetes is based on the premise that testing could accurately identify a significant number of individuals at particularly high risk and lead to various interventions that prevent cardiac events.