

Coronary Flow Reserve is Related to 10-Year Risk by Framingham Risk Scores in Subjects with Chest Pain and Normal Coronary Angiogram

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Background and Aim : The syndrome of angina or angina-like chest pain with a normal coronary angiogram, often referred to as syndrome X is an important clinical entity and has usually an excellent prognosis. Although the exact mechanism of this syndrome has not been clearly defined, the decreased coronary flow reserve (CFR) has been suggested as a most important etiology. The aim of this study was to elucidate the relation between CFR and Framingham Risk Score (FRS) in subjects with chest pain and normal coronary angiogram. **Methods :** 354 subjects (M:F ratio = 186:168, mean age: 55±11 years) with chest pain and a normal coronary arteriogram were enrolled. CFR using of transthoracic Doppler echocardiography (TTE) and adenosine or dipyridamole was measured within two weeks after coronary angiogram. We compared CFR with FRS. **Results :** 1. FRS was 12.6±4.4 in subjects with CFR <2.0. 2. FRS was 10.9±5.5 in subjects with 2.0 ≤ CFR <3.0. 3. FRS was 9.75±5.9 in subjects with CFR ≥3.0. 4. There was a significant difference in FRS between subjects with CFR <2.0 and CFR ≥3.0 (p <0.001). 5. CFR had an inverted correlation with FRS (r = -0.222, p <0.001) (Fig). **Conclusions :** Our results suggest CFR is closely related to FRS and the impaired CFR can predict the high 10-year risk of coronary artery disease even in subjects with chest pain and normal coronary angiogram.

A Case of Takotsubo Cardiomyopathy (Left Ventricular Apical Ballooning) in Iatrogenic Thyrotoxicosis

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Takotsubo cardiomyopathy is a type of non-ischemic cardiomyopathy in which there is a sudden temporary weakening of the myocardium. This condition can be caused by emotional or physical stress. A 55-year old woman was referred to our hospital as an aborted sudden cardiac death. Three months ago, levothyroxine 0.2mg per day was prescribed for non-functional multiple thyroid nodules at local clinic. The day of admission, the patient visited local clinic due to substernal chest pain, and sustained ventricular tachycardia occurred an hour and half later. Initially, the patient showed cardiogenic shock with pulmonary edema, and thyrotoxicosis (T3 ?118.22ng/dL (60~181), TSH ?0.04uIU/mL (0.35~5.5), fT4 ?2.29ng/dL (0.89~1.76)). 2D-echocardiogram showed severely decreased left ventricular systolic function with akinesia of apical to mid wall and preserved all basal walls. After consulted to endocrinologist, we tried prophylthiouracil 150mg per day, and could observe decreased heart rate and improvement of general condition. Thyroid sonogram showed multiple scattered thyroid nodules and thyroid scan showed diffuse hot uptake. TSH receptor Ab was 18.3% (0~15) and anti-thyroglobulin Ab and anti-microsome Ab were negative. Coronary angiography was normal and LV ventriculogram showed akinesia of apical to mid wall with preserved basal wall motion. Therefore, we experienced apical ballooning caused by iatrogenic thyrotoxicosis without evidence of emotional or physical stresses by history. In conclusion, we should realize that iatrogenic thyrotoxicosis can cause takotsubo cardiomyopathy and it could be fatal.