



Echocardiographic Evaluation of Cardiac Structure and Function in Egyptian Obese Adolescents

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Abstract:

Objective: The objective of this study was to detect structural and functional changes in left and right ventricles in Egyptian obese adolescents.

Methods and Results: Anthropometric, and echocardiographic parameters, including tissue Doppler imaging were obtained in 70 obese adolescents with average body mass index (34 plus or minus 3.8), compared with 50 age and sex matched controls, body mass index (21.6 plus or minus 1.9). Cardiac dimensions, stroke volume, left ventricular and right ventricular systolic and diastolic functions were evaluated. The obese group had higher end-diastolic septal and posterior wall thickness and left ventricular mass index, than the non-obese. Body mass index, midarm and hip circumference values showed significant correlations with these echocardiographic variables. Systolic and diastolic functions of the left ventricle were normal in both groups, although stroke volume was high the obese one. The right ventricle tissue Doppler parameters were similar in both groups. However, S wave of septal/lateral tricuspid valve annulus was reduced in the obese group, but not to the level reflecting systolic dysfunction. This was inversely correlated with hip, waist and midarm circumference. Stepwise multiple regression analysis showed that the mid-arm and hip circumference, followed by the body mass index are significant predictors for these early cardiac abnormalities.

Conclusion: Left ventricular hypertrophy is present in obese children although both systolic and diastolic functions are normal. Tissue Doppler imaging revealed a minor, but still significant, reduction in the right ventricle systolic function. Mid-arm and hip circumference are predictors of left ventricular hypertrophy.

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Plasma Thrombin-Activatable Fibrinolysis Inhibitor Levels and Thr325Ile Polymorphism as a Risk Marker of Myocardial Infarction in Egyptian Patients

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Abstract

Objective: The objective of this study was to investigate whether Thrombin Activatable Fibrinolytic Inhibitor (TAFI) Thr325Ile polymorphism and TAFI antigen (Ag) levels could constitute a risk marker of myocardial infarction (MI) in Egyptian patients. **Methods and Results:** The study included forty six patients with acute MI (mean age 55.7 ± 8.1 years, male: female 33:13) compared with age and sex-matched healthy volunteers (n=54) as a control group. Clinical examination, laboratory investigation, electrocardiography (ECG) and/or echocardiography were done. TAFI Thr325Ile (reference sequence: rs1926447) polymorphism was genotyped in both studied groups using TaqMan SNP (single nucleotide polymorphism) genotyping assay. The genotypes of the high risk allele [Thr/Ile (CT) and Ile/Ile (TT)] were significantly more frequent in patients compared to control group (54.4% and 32.6% vs. 51.8% and 5.6%, respectively) and were also associated with an increased risk of MI [OR = 4.95, (95% CI: 1.80-13.63); p=0.0001]. Ile325 allele carriers were more frequent in cases than in controls (60.0% vs. 31.5%) [OR = 3.26, (95% CI= 1.82 -5.83), P=0.001]. The Thr325Ile SNP was significantly correlated with TAFI antigen levels with the C/C genotype corresponding with the highest and the T/T genotype with the lowest TAFI antigen levels (P<0.001).

No statistically significant relation was found between TAFI Thr325Ile polymorphism and either the type nor the site of MI.

Conclusions: TAFI Thr325Ile and its respective plasma protein level could have a contribution to MI risk in Egyptian population. This could be helpful in refining a risk profile for coronary heart disease (CHD) patients.



Transforming Growth Factor- β 1 Gene C-509T and T869C Polymorphisms as Possible Risk Factors in Rheumatic Heart Disease in Egypt

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Abstract:

Objective: To investigate the possible relationship between the TGF- β 1 gene C-509T and T869C polymorphisms and rheumatic heart disease (RHD), as well as their clinical significance.

Methods: Seventy-three patients with RHD diagnosed by echocardiography (mean age 31.7 ± 14.7 yrs, male: female 20:53) and, fifty-five age and sex-matched unrelated healthy volunteers (normal control) were included. Patients were classified according to age into children ($n=24$, mean age 14.4 ± 3.1 yrs, and adults ($n=49$, mean age 40.2 ± 9.9 yrs). TGF- β genomic DNA was extracted and amplified using primers specific for C-509T and, T869C polymorphisms. Genotyping were performed by restriction fragment length polymorphism analysis (RFLP).

Results: T869C TT genotype was significantly more frequent in RHD (total population) (OR: 3.27; [95% CI: 1.13-9.46]; $p=0.02$), in children (OR: 6.0; [95% CI: 1.74-20.65]; $p=0.002$) and in patients with combined valvular disease (CVD) (OR: 4.06; [95% CI: 1.32-12.48]; $p=0.01$) compared to control. 869T allele frequency was significantly higher in adults (OR: 1.89; [95% CI: 1.07-3.33]; $p=0.02$), children (OR: 2.32; [95% CI: 1.16-4.66]; $p=0.01$) and the total population (OR: 2.02; [95% CI: 1.21-3.39]; $p=0.006$). C-509T genotypes distributions were not different between RHD patients and controls. However, -509T allele seems to confer susceptibility to RHD (OR: 1.78; [95% CI: 1.02-3.11]; $p=0.03$). Both adults and children showed no significant difference in the genotypes distribution and allelic frequencies of TGF- β 1 C-509T polymorphism. In addition, genotypes distribution and allelic frequencies of C-509T or T869C did not have any relations with the severity of valvular affection.

Conclusion: TGF- β 1 T869C TT genotype, 869T allele and 509T allele are possible risk factor for RHD in Egypt. Future studies on larger population are warranted.