Cardiovascular Medicine

Relation of coronary arteries atherosclerosis with the glycemic control and lipid profile in type two diabetic patients

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Background: Coronary artery disease (CAD) is the leading cause of death among individuals with type 2 diabetes (T2DM). T2DM accelerates atherosclerosis alongside classical risk factors such as dyslipidemia and hyperglycemia. This study aims to investigate the association of hyperglycemia and dyslipidemia with CAD in outpatients with T2DM undergoing coronary angiography.

Methods: 100 individuals referred to coronary angiography were evaluated for glucose disturbances. After exclusion of those with pre-diabetes, 74 individuals with T2DM were studied for BMI, blood pressure, fasting plasma glucose, HbA1c, lipids, HOMA, Framingham risk score, number of clinically significant coronary lesions (stenosis >50%).

Results: Among T2DM subjects, those with CAD (n = 56) had worse glycemic control (fasting glucose 162.3 ± 69.8 vs. 143.4 ± 48.9 mg/dL, p = 0.004; HbA1c 8.03 ± 1.91 vs. 7.59 ± 1.55%, p = 0.03), lower HDL (39.2 ± 13.2 vs. 44.4 ± 15.9 mg/dL, p = 0.003), and higher triglycerides (140 [106–204] vs. 121 [78.5–184.25] mg/dL, p = 0.002), reached more often therapeutic goals for LDL (63.4% vs. 51.4%, p = 0.037) and less often goals for HDL (26.6% vs. 37.3%, p = 0.04), when compared to CAD-free individuals (n = 18). In T2DM subjects HbA1c tertiles were associated with progressively higher number of significant coronary lesions (median number of lesions 2 [A1c < 6.8%]; 2.5 [A1c 6.8-8.2%]; 4 [A1c > 8.2%]; p = 0.01 for trend).

Conclusions: Classic risk factors such as glycemic control and lipid profile were associated with presence of CAD in T2DM subjects undergoing coronary angiography. Glycemic control is progressively associated with number and extent of coronary lesions in patients with T2DM.

Role of brain natriuretic peptide as an independent predictor of short term outcome in patients with cardiac resynchronization therapy

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Background: In the last decades, the field of management of cardiovascular diseases has moved forward impressively, offering large numbers of patients and subjects at risk for acute and chronic diseases of the heart and vessels a better survival, decreased morbidity and an improved quality of life. Implanted devices, such as cardioverter-defibrillators (ICDs) and pacemakers, can also be beneficial. Some patients with HF benefit from simultaneous pacing of both ventricles (biventricular or BiV pacing) or of one ventricle in patients with bundle branch block. This approach is referred to as cardiac resynchronization therapy (CRT). CRT can be achieved with a device designed only for pacing or can be incorporated into a combination device with an ICD. The rationale for cardiac resynchronization therapy (CRT) in HF is based upon the observation that the presence of a bundle branch block or other intraventricular conduction delay can worsen heart failure due to systolic dysfunction by causing ventricular dyssynchrony. Consistent with the concept that left ventricular dyssynchrony exacerbates ventricular dysfunction is the observation that a variety of hemodynamic benefits as well as improved clinical outcomes follow the correction of dyssynchrony with CRT. In recent years the role of biomarkers, which are specific analytical tests on enzymes, hormones, and other biological substances mostly derived from the blood has become increasingly important and has expanded exponentially. BNP in particular established as a useful clinical diagnostic and prognostic tool.

Objective: The aim of this study is to find out whether an early change in BNP after implantation of CRT can predict the clinical response.

Patients and Methods: This study included 20 patients fulfilled criteria of implantation of CRT with advanced symptomatic systolic HF.

Results: The mean age in the study was 60 years old. As regards the gender, the study included 15 males and 5 females. Both responder and non-responder were comparable as regards risk factors except for female gender which were more responders. Cigarette smoking was found in 60 % of the patients, 85 % were hypertensive and 65 % were diabetic. In our study most of patients were adherent to guidelines in regard ACEI and BB usage with only 25% of patients were on digoxin. LVEF in our study patients was ranged 20-32%, QRS duration was ranged 122-150 m.sec., 70% of patients have dyspnea NYHA class III and ischemia was present in 55% of patients. Our patients show statistically significant difference between responders and non responders as regard smoking, blood urea level and those patients who were responder had wider QRS complex than non responder. BNP was accurate in predicting short term (2 weeks) patient responsiveness and it was highly correlated to 6WMT and quality of life score (Qol) score changes in these patients.

Conclusion: Cardiac resynchronization improves a broad range of measures of cardiac function and clinical status in patients with moderate-to-severe heart failure and a prolonged QRS interval. QRS duration was better than both LVEF and NYHA class in predicting responders. In addition to 6WMT and Qol, BNP is of clinical value in predicting CRT responder.