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CORONARY ANGIOGRAPHIC PROFILE IN PATIENTS WITH LEFT BUNDLE BRANCH BLOCK-AN OBSERVATIONAL STUDY

Cardiology

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ABSTRACT

Background and Objective: Complete Left bundle branch block(LBBB) increases the risk of cardiac mortality, and prognosis is primarily determined by the underlying coronary artery diseases. Our aim is to study the coronary angiographic profile in patients with symptomatic left bundle branch block(LBBB).

Material and Methods: This observational study was done on 48 symptomatic patients of LBBB during a study period of nine months from April 2017 to December 2017 in a tertiary care hospital at Chennai,Tamilnadu. These patients were subjected to coronary angiography and all the data were collected and analyzed by SPSS 20.

Results: Out of 48 Symptomatic LBBB patients, 33 (68.8%) were male &15 (31.3%) were female. Mean age of our study population was 54 yrs. On risk factor analysis,33% of them had diabetes,23% had hypertension and 27% of patients were smoker. Among the 48 patients,21(44%) presented with STEMI,19(40%) with NSTEMI and 8(16%) with stable ischemic heart disease. Patients were profiled on the basis of CAG as left main disease, triple (TVD), double (DVD) & single vessel disease (SVD). Among the 48 patients studied, 27 patients had coronary artery disease.CAG analysis showed SVD in 22(46%)pts, DVD in 2(4%), TVD in 3(6%) pts and 21(44%) patients has normal coronaries. LMCA was normal in all the patients. Of the three,Left anterior descending artery(LAD) is the most commonly involved vessel.

Conclusion: Left bundle branch block was associated with Significant coronary heart disease and left ventricular dysfunction in our study population. Diabetes and Hypertension were common risk factors associated with symptomatic LBBB patients. From our study, we conclude that Symptomatic LBBB patients were prone to have significant Coronary artery disease and hence Coronary Angiogram should be considered in all patients.

KEYWORDS

Lbbb - Left Bundle Branch Block. SVD - Single Vessel Disease, DVD-Double Vessel Disease, TVD – Triple Vessel Disease

INTRODUCTION:

Left bundle branch block (LBBB) occurs when normal electrical conduction through the left bundle of the His-Purkinje system is interrupted and thereby results in alteration of the normal sequence of activation in the left ventricle. 1 , LBBB can present in young asymptomatic individuals with structurally normall heart (isolated LBBB) and is usually associated with a favourable prognosis. 3–5 At Elderly, LBBB often associated with underlying structural heart disease (e.g. hypertension, ischemia, valvular) and it acts as an independent predictor of unfavourable cardiovascular outcomes. 4 , 6–11 Thus, the occasional finding of LBBB is now considered as a potential harbinger of underlying heart disease and prompting further non-invasive or invasive diagnostic procedures. In one study it was found that 12%of patients with LBBB have no demonstrable disease. Even among these patients, LBBB is associated with a higher than usual risk of cardiovascular disease and all cause mortality. We studied symptomatic patients with LBBB with the help of Conventional CAG to assess the Coronary artery disease Prevalence.

MATERIALAND METHODS

It was an observational study done on 48 symptomatic patients of LBBB during a study period of nine months from April 2017 to December 2017 in Institute of Cardiology,Rajiv Gandhi Government General Hospital at Chennai,Tamilnadu.

Inclusion criteria:

Hemodynamically stable symptomatic LBBB Patients more than 18 years of age admitted in our hospital.

LBBB was confirmed by electrocardiography (ECG). The diagnostic criteria for Complete Left Bundle Branch Block were (12)

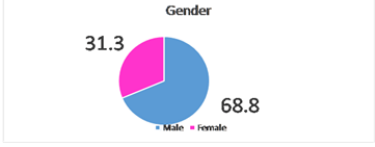
1. QRS duration ≥120 msec.
2. Broad, notched R waves in lateral precordial leads (V5and V6) and usually leads I and aVL .
3. Small or absent initial r waves in right precordial leads (V1and V2) followed by deep S waves.
4. Absent septal q waves in left-sided leads.

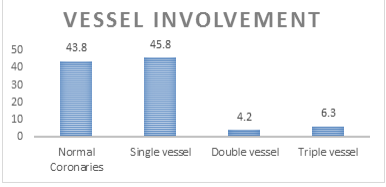
Exclusion criteria:

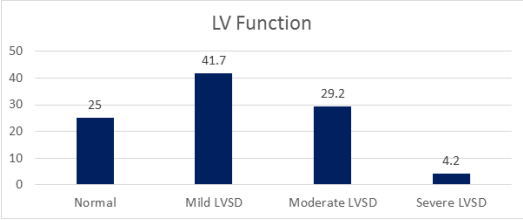
1) Age<18yrs
2) Hemodynamically unstable LBBB pts.
3) Patients who are not willing for CAG.

Echocardiography was done for all patients to assess left ventricular (LV) function and regional wall motion abnormalities which were correlated with coronary angiographic findings. All patients were prepared for coronary angiogram after getting a consent and the test was done in a single center using Philips Machine in standard angiographic views.All data were collected and analyzed by SPSS 20.

RESULTS: Out of 48 LBBB patients, 33(68.8%) were male & 15(31.3%) were female. Among all,18(37.5%) patients were at age group 51-60 years, 13(27.1%) were >60 years, 8(16.7%) were at 40-50 years and 9(18.8%) were at <40years of age . Mean age of the patient was 54 yrs. On risk factor analysis, 33.3% had diabetes,22.9% had hypertension and 27.1% of patients was smoker. Among the 48 patients,21(43.8%) presented with MI,19(39.6%) with NSTEMI and 8(16.7%) with stable ischemic heart disease. Patients were profiled on the basis of CAG as left main disease, Triple (TVD), Double (DVD) & Single vessel disease (SVD). More than 50% stenosis in the artery were considered as diseased. Among the 48 patients studied, 27(56%) patients had coronary artery disease.CAG analysis showed SVD in 22(45.8%)pts, DVD in 2(4.2%), TVD in 3(6.3%) pts and 21(43.8%) patients had Normal coronaries. LMCA was normal in all the patients. Of the three, Left anterior descending artery (LAD) was the most commonly involved vessel.On Echocardiographic evaluation 12(25%)patients had normal LV systolic function,20(41.7%) had Mild LV dysfunction,14(29.2%) had Moderate LV dysfunction.







DISCUSSION:

Patients with LBBB and concomitant CAD have a worse prognosis than those with LBBB without CAD.In the Framingham study, patients with LBBB who were followed , had increased mortality as compared with those without LBBB, but this worsened survival was observed only in those with concomitant CAD. Patients with LBBB and no CAD had reasonably good prognosis.

Regarding risk factor analysis 33.3% patients had diabetes,22.9% had hypertension and 27.1% of patients was smoker, five patients had history of alcoholism. The results of present study with reference to risk factors were similar to those published earlier that diabetes and hypertension are two important risk factors of IHD. H/O smoking, life style and family history of IHD were found as common risk factors. All of the above findings are consistent with the earlier study.

Patients with bundle branch block had both more extensive coronary artery disease and worse left ventricular function than did patients without bundle branch block. However, no particular location of coronary artery stenosis or left ventricular wall motion abnormality predominated in patients with bundle branch block(4).

In our study, among the 48 patients studied 27(56%) patients had coronary artery disease.CAG analysis showed SVD in 22(45.8%)pts, DVD in 2(4.2%), TVD in 3(6.3%) pts and 21(43.8%) patients has normal coronaries. LMCA was normal in all the patients. Left anterior descending artery is the most commonly involved artery. (3)In the Framingham Study, Schneider and co-workers observed a significant association of new-onset LBBB with CAD at a mean age of 62 years. Almost half of patients (48%) developed overt CAD or heart failure with or subsequent to the onset of LBBB, and in men, LBBB was an independent predictor of cardiovascular mortality. Similar results were observed from other smaller reports. 6 In our study most of the study population were acute coronary syndrome patients, hence 56% of patients had significant coronary artery disease in angiography and also had significant LV systolic dysfunction.

Conclusion: Left bundle branch block was associated with Significant coronary heart disease and left ventricular dysfunction in our study population. Diabetes and Hypertension were common risk factors associated with symptomatic LBBB patients. From our study, we conclude that Symptomatic LBBB patients were prone to have significant Coronary artery disease and hence Coronary Angiogram should be considered in all patients.

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