LBBB as A Diagnostic Criterion for Myocardial Infarction in Haemodynamically Stable Patients

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Abstract:
Background:prompt and accurate identification of ST Elevation myocardial infarction(STEMI) In the presence of Left bundle branch block(LBBB) remains difficult. Repolarization in LBBB is characterized by ST segment deviation away from direction of terminal QRS waveforms. Therefore the ECG manifestations of STEMI may be obscured or mimicked by baseline secondary ST segment deviation of LBBB.
Aim: study is aimed at finding the incidence of MI in new onset LBBB
Methods:This is a prospective observational study .patients older than 30 years who presented with chest pain whose ecg showed ACS was enrolled ECG classified according to standardized guidelines , including LBBB not to be known old . LBBB to be old , or no LBBB.
Results:In this investigation, 21.73% of patients with new LBBB had prior history OF MI whereas 29.62% of with old LBBB had prior history of MI. 56.52% of patients with new LBBB had prior history of CAHD whereas 62.96% of with old LBBB had prior history of CAHD
Key words- LEFT BUNDLE BRANCH BLOCK, MYOCARDIAL INFARCTION.

I.   INTRODUCTION

New onset LBBB was also considered as STEMI equivalent.But the difficulty in LBBB is that during repolarization there is a deviation of ST segment away from the QRS complex.As a consequence the ECG manifestation of ST segment elevation in STEMI could be masked or mimicked by the secondary ST segment deviation of LBBB.Based on this diagnostic uncertainity there was recommendation in 1996 and 2004 American college of cardiology [ACC] and American heart Association [AHA] to consider new onset LBBB as Class Ia indication for emergent reperfusion therapy.These recommendation were based on the Fibrinolytic Therapist Review on several randomized control trials during the fibrinolytic era

But Later studies using angiography concluded there is no documented coronary occlusion angiographically in majority of the people with new onset LBBB.Now there is a paradigm shift in the management of the patient with new onset LBBB and the new 2013 STEMI guidelines byAmerican College of cardiology and American Heart Association has removed the previous recommendations that the new onset LBBB should be treated as STEMI equivalents My study is to find the   incidence of Acute Myocardial Infarction in patients with potential ischemic symptoms   in relation to the presence of old or new onset LBBB

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and to analyze whether new onset LBBB predicts increased likelihood of Acute MI by monitoring with serial Troponin T and echocardiography.

AIM OF THE STUDY: To study the relevance of LBBB as a diagnostic criterion for Acute myocardial Infarction

MATERIALS AND METHODS : Hypertensive patients who visit the Department of Medicine , Fathima institute of medical sciences, Kadapa were enrolled for the study after excluding exclusion criteria.

Inclusion criteria :
a.   Patients of any gender above or equal to 30 years of age at the time of hospital admission
b.   Patients presenting with typical anginal pain and suspected Acute coronary syndrome
c.   Ecg shows Left Bundle Branch Block

Exclusion criteria :
a.   Patients below 30 years of age
b.   Patients in acute Heart Failure
c.   Hemodynamically unstable patient

Setting   : Fathima Institute of medical sciences , kadapa
Study design: Short term prospective studystudy
Duration of study: 1 year
Sample size   : 50
A total of of fifty(n = 50) patients who were hospitalized for suspected acute coronary syndrome as well as satisfied our inclusion and exclusion criteria were selected for the study.Data collected included Demographics,History,ECG, and cardiac markers -Troponin T.
Electrocardiograms were classified according to standard guidelines as Left Bundle Branch Block not known to be old[new or presumably new onset] and LBBB known to be old.

STATISTICAL ANALYSIS :
          Multivariate linear regression analysis with 95% confidence interval (CI) will be done for statistical analysis. Data are expressed in mean ± SE (Standard Error). P value <0.05 will be taken as statistically significant. All these analysis will be performed by using a commercially available software Statistical Package for the Social Sciences (SPSS) on personal computer

II.   RESULTS:

Age in relation to occurrence of new onset and old LBBB
Age in relation to occurrence of new onset and old LBBB 73.9% of people with new lbbb are more than 50 years of age
96.3% of people with old lbbb are more than 50 year of age.   Older age has higher history of old lbbb which shows as age progress incidence of lbbb is high.

Table 1 shows age of patients with new and old LBBBs

Age	New onset LBBB	Old LBBB
Above 50 years	73.9%	96.3%
Below 50 years	26.1%	3.7%

Gender in relation to new onset and old LBBB
78.3% of patients with new LBBB were males whereas 62.96% of patients with old LBBB were males
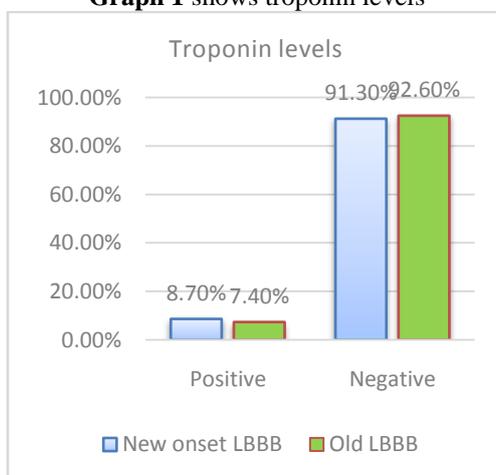
Table 2 shows gender of patients

Gender	New onset LBBB	Old LBBB
Males	78.3%	62.9%
Females	21.7%	37.1%

TROPONIN CORRELATION IN OLD AND NEW ONSET LBBB IN SUSPECTED ACUTE CORONARY SYNDROME

8.7% of the people with new LBBB were troponin positive while 7.4% of the patient with old LBBB had Troponin positivity. No Significant Difference In Incidence Of MI in Both New onset And Old LBBB in suspected Acute coronary syndrome.

Graph 1 shows troponin levels

DIABETES MELLITUS ASSOCIATION IN NEW ONSET AND OLD LBBB IN SUSPECTEDACUTE CORONARY SYNDROME

69.56% OF PATIENTS WITH NEW LBBB HAD DM WHEREAS62.96% WITH OLD LBBB HAD DM.

Table 3 shows diabetes among patients

| Diabetes	New onset LBBB	Old LBBB
Males	69.56%	62.96%
Females	30.44%	37.1%

TROPONIN CORRELATION IN OLD AND NEW ONSET LBBB IN SUSPECTED ACUTE CORONARY SYNDROME

P=0.867 OR=0.840

8.7% of the people with new LBBB were troponin positive while 7.4% of the patient with old LBBB had Troponin positivity No Significant Difference In Incidence Of MI in Both New onset And Old LBBB in suspected Acute coronary syndrome

PRIOR MI ASSOCIATION IN NEW AND OLD LBBB IN A SUSPECTED ACUTE CORONARY SYNDROME- Prior MI association in New and Old LBBB in a suspected acute coronary syndrome,**P = 0.526OR = 0.660**

21.73% of patients with new LBBB had prior history OF MI whereas 29.62% of with old LBBB had prior history of MI.
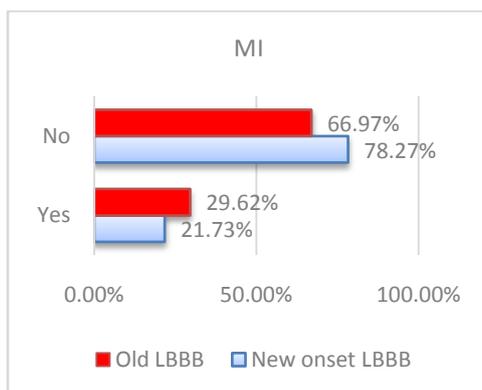
CAHD ASSOCIATION IN NEW ONSET AND OLD LBBB IN SUSPECTED ACUTE CORONARY SYNDROME

56.52% of patients with new LBBB had prior history of CAHD whereas 62.96% of with old LBBB had prior history of CAHD

VALVULAR HEART DISEASE ASSOCIATION IN NEW ONSET AND OLD LBBB IN SUSPECTED ACUTE CORONARY SYNDROME

8.69% of patients with new   LBBB had history of Valvular heart disease whereas 7.4% of with old LBBB had prior history of Valvular heart disease

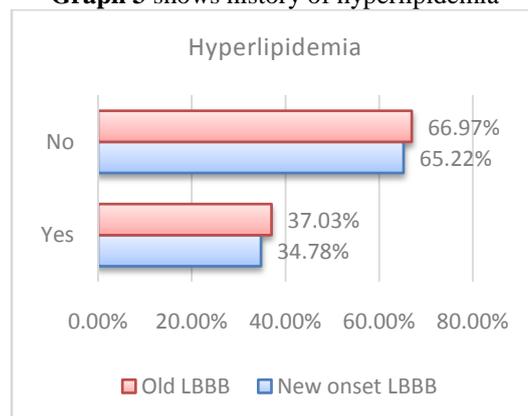**HYPERLIPIDEMIA ASSOCIATION IN NEW ONSET AND OLD LBBB IN SUSPECTED ACUTE CORONARY SYNDROME**

P = 0.869

OR = 0.907

Hyperlipidemia doesn't have significant influence on LBBB among this study group there is no significant difference two groups on relation between hyperlipidemia and LBBB

34.78% of patients with new LBBB had prior history of hyperlipidemia whereas 37.03%% of with old LBBB hadprior history of hyperlipidemia.

Graph 3 shows history of hyperlipidemia

TIMI SCORE ASSOCIATION WITH NEW AND OLD LBBB IN A SUSPECTED ACUTE CORONARY SYNDROME

P = 0.936

TIMI score doesn't have significant influence on LBBB among this study group there is no significant difference two groups on risk of incidence of mi based on TIMI score.

III.   CONCLUSION:

There is no difference in the incidence of Myocardial Infarction in the patients with old LBBB and new onset LBBB.Hemodynamically stable Patients with suspected Acute Coronary Syndrome and new onset LBBB are not at increased risk of AMI.Presence of LBBB whether new or old LBBB did not predict acute myocardial InfarctionAlgorithmic approach towards a suspected Acute coronary syndrome should take into consideration hemodynamic status ,whether patient is in acute heart failure AND whether ECG fits into Smiths criteria and if any of them is present ,decision for reperfusion should be promptly taken.

REFERENCES:

[1].   Sgarbossa EB, Pinski SL, BarbagelataA, et al. Electrocardiographic diagnosis of evolving acute myocardial infarction in the presence of left bundle-branch block. GUSTO-1 (Global Utilization of Streptokinase and Tissue Plasminogen Activator for Occluded Coronary Arteries) Investigators. N Engl J Med 1996;334:481-7.

[2].   Cannon CP, McCabe CH, Stone PH, et al. The electrocardiogram predicts one-year outcome of patients with unstable angina and non-Q wave myocardial infarction: results of the TIMI III Registry ECG Ancillary Study. Thrombolysis in Myocardial Ischemia. J Am CollCardiol 1997;30:133- 40.

[3].   Wong CK, French JK, Aylward PE, et al. Patients with prolonged ischemic chest pain and presumed-new left bundle branch block have heterogeneous outcomes depending on the presence of ST-segment changes. J Am CollCardiol 2005;46:29 -38.

[4].   Al-Faleh H, Fu Y, Wagner G, et al. Unraveling the spectrum of left bundle branch block in acute myocardial infarction: insights from the Assessment of the Safety and Efficacy of a New Thrombolytic (ASSENT 2 and 3) trials. Am Heart J 2006;151:10 -5.

[5].   Lopes RD, Siha H, Fu Y, et al. Diagnosing acute myocardial infarction in patients with left bundle branch block. Am J Cardiol 2011;108:782- 8.

[6].   Jain S, Ting HT, Bell M, et al. Utility of left bundle branch block as a diagnostic criterion for acute myocardial infarction. Am J Cardiol 2011;107:1111- 6.. Rude RE, Poole WK, Muller JE, et al. Electrocardiographic and clinical criteria for recognition of acutemyocardial infarction based on analysis of 3,697 patients. Am J Cardiol 1983;52:936 - 42.