18th European Congress of INTERNAL MEDICINE
29-31 August, 2019
Lisbon, Portugal
Innovation in Health Care: New Opportunities for Internal Medicine
EFIM www.efim.org

#505

IS BUNDLE BRANCH BLOCK USEFUL IN HEART FAILURE RISK STRATIFICATION? - DISCLOSURES FROM THE REFERENCE STUDY

Andreia Matos[1,2], **Mário Barbosa[3]**, Manuel Bicho[1,2], Luiz Menezes Falcão[4,5]

[1] Genetics Laboratory and Environmental Health Institute-ISAMB, Faculty of Medicine, University of Lisbon, Portugal; [2] Instituto de Investigação Científica Bento da Rocha Cabral; [3]Department of Internal Medicine, Hospital Lusíadas Lisboa, Lisbon, Portugal; [4] Faculty of Medicine, University of Lisbon; [5] Department of Internal Medicine, Santa Maria Hospital, Lisbon, Portugal.

BACKGROUND: Although it has been reported that QRS prolongation ≥ 120 msec, in heart failure (HF) patients, is associated with increased all-cause mortality[1,2,3] and even sudden death[1], there is conflicting data regarding its direct impact on mortality. Ventricular dyssynchrony as an effect of anomalous conduction could justify the adverse outcome in the case of left bundle branch block (LBBB)[1]; while patients with QRS ≥ 120 msec with right bundle branch block (RBBB) morphology frequently have more severe bi-ventricular dysfunction[4].

OBJECTIVE: We analyzed the association of LBBB and RBBB with early (defined as the period of 90 days post-discharge) rehospitalization and all-cause mortality, and all-cause long-term mortality in HF patients.

METHODS: Bundle branch block was assessed in adult patients admitted, to an Internal Medicine ward, with acute decompensated heart failure in class III or IV of New York Heart Association (NYHA). Subgroup analysis was performed according to the left ventricular ejection fraction (LVEF) in light of the current European Society of Cardiology guidelines. Descriptive analysis was performed using t test or Wilcoxon Rank test as applicable. Categorical variables were compared using chi-squared test or Fisher's Exact test as applicable. Univariate Cox proportional hazard model was used to evaluate the relationship between variables and outcomes.

RESULTS

N=65 HF patients
Mean age: 79.2 (SD 10.8)

Median follow-up 13.7 months
Q1: 6.7 to Q3: 18.9]

Table 1 – General baseline characteristics

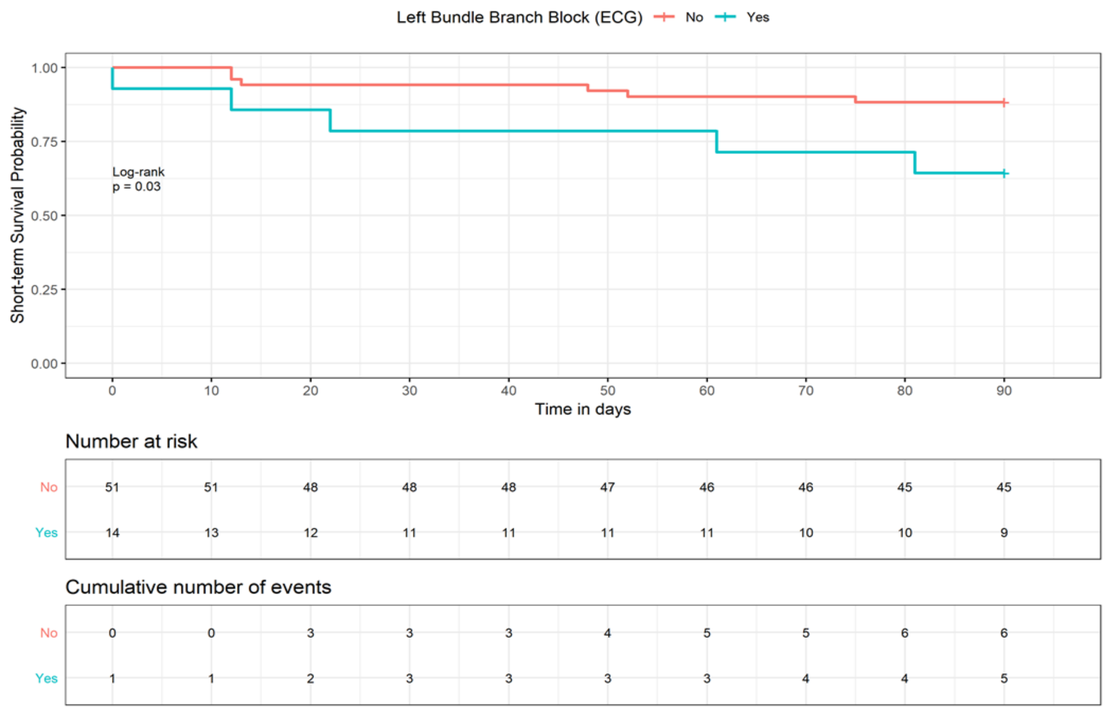
Characteristics	Patients (n=65)
Age, mean (SD)	79.2 ± 10.8
Female Gender, n (%)	37 (56.9)
Hypertension, n (%)	58 (89.2)
Type 2 Diabetes, n (%)	25 (38.5)
Dyslipidemia, n (%)	41 (63.1)
Obesity, n (%)	17 (26.2)
Atrial Fibrillation, n (%)	28 (43.1)
Family History of CVD, n (%)	31 (47.7)
Tabagism, n (%)	21 (32.3)
Chronic Kidney Disease, n (%)	34 (52.3)
GFR (Baseline), median	57.8 (43.8 - 82.2)
GFR (Admission), median	47.9 (33.2 - 68.1)
Previous Acute Myocardial Infarction, n (%)	27 (41.5)
Hypertensive Cardiomyopathy, n (%)	44 (67.7)
Ischemic Cardiomyopathy, n (%)	22 (33.8)
Valvular Cardiomyopathy, n (%)	56 (86.2)
LVEF, mean (SD)	50.38 ± 19.07
NYHA class III, n (%)	43 (66.2)
ACE Inhibitor, n (%)	43 (66.2)
Beta Blocker, n (%)	38 (58.5)
Mineralocorticoid Receptor Antagonists, n (%)	19 (29.2)
Angiotensin II Receptor Blocker, n (%)	11 (16.9)
Loop Diuretic, n (%)	54 (83.1)
Digoxin, n (%)	8 (12.3)
LBBB	14 (21.5%)
RBBB	5 (7.7%)

Values are median (IQR), n (%), or mean ± SD.
IQR: interquartile range and minimum/maximum, SD: standard deviation, CVD: cardiovascular disease, GFR: glomerular filtration rate; left bundle branch block (LBBB); right bundle branch block (RBBB).

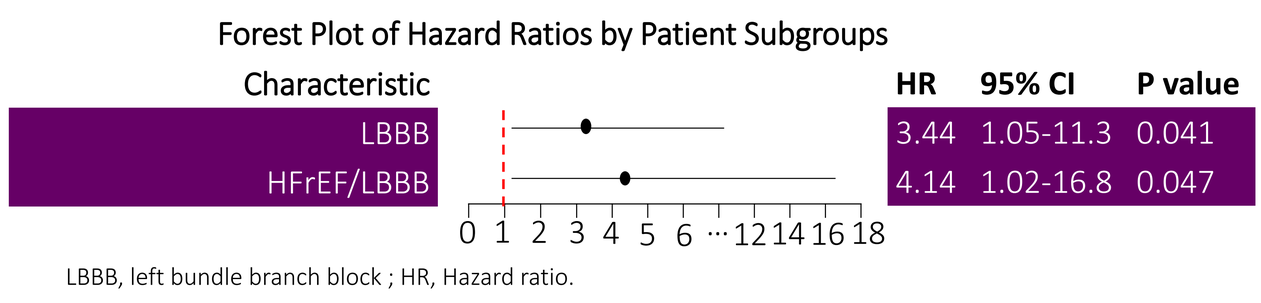
- In our study the percentage of LBBB (21.5%) was close to the available data[1,2], while RBBB was present in 7.7% of the patients.

LBBB 21.5%

RBBB 7.7%



Short-term mortality



LBBB, left bundle branch block ; HR, Hazard ratio.

- Descriptive analysis showed that only 4.7% of the non-early readmitted patients presented RBBB versus 13.6% in the early readmitted patients (P-value=0.049).

CONCLUSION:

- In our study LBBB was a marker of short-term mortality risk in the overall population study.
- Regarding long-term survival, LBBB was also a predictor of worse outcome in the HFrEF subgroup.
- We were, also, able to detect a link between RBBB and early HF readmission in the general population study.
- Our findings suggest that bundle branch block implicates a worse outcome in HF patients, prompt recognition of this high-risk group could help to offer tailored treatment in order to improve prognosis.

REFERENCES:

1- Baldasseroni S, Opasich C, Gorini M, et al. Left bundle-branch block is associated with increased 1-year sudden and total mortality rate in 5517 outpatients with congestive heart failure: a report from the Italian network on congestive heart failure. Am Heart J. 2002 Mar;143(3):398-405.

2- Tabrizi F, Englund A, Rosenqvist M, et al. Influence of left bundle branch block on long-term mortality in a population with heart failure. Eur Heart J. 2007 Oct;28(20):2449-55.

3- Wang NC, Maggioni AP, Konstam MA, et al; Efficacy of Vasopressin Antagonism in Heart Failure Outcome Study With Tolvaptan (EVEREST) Investigators. Clinical implications of QRS duration in patients hospitalized with worsening heart failure and reduced left ventricular ejection fraction. JAMA. 2008 Jun 11;299(22):2656-66.

4- P. Pellicori, E. Lukaschuk, J. Zhang, A. Joseph, T. Mabote, A. Shoaib, C. Bourantas, H. Loh, A.L. Clark, J.G.F. Cleland; Right bundle branch block in patients with heart failure. Is it associated with worse cardiac function on MRI and an adverse prognosis?, European Heart Journal, Volume 34, Issue suppl_1, 1 August 2013, P2920.