Progression of Incomplete Toward Complete Left Bundle Branch Block

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Abstract

Cardiovascular mortality, sudden cardiac death, and heart failure are all linked to Complete Left Bundle Branch Block (CLBBB). The appearance of CLBBB on an Electrocardiogram (ECG) elevates clinical awareness and frequently necessitates additional cardiac investigations and clinical follow-up. Incomplete LBBB (ILBBB) is characterised by a QRS shape similar to CLBBB but with a QRS Duration (QRSD) of less than 120 milliseconds. Patients with ILBBB have a poor clinical profile and a long natural history; hence their clinical profile and natural history are mostly unknown. The purpose of this study is to evaluate the clinical profile of ILBBB patients, the rate and risk factors for progression to CLBBB, and the outcome of ILBBB patients.

Keywords: Complete left bundle branch block • Incomplete left bundle branch block • QRS notching

Introduction

Cardiovascular death and heart failure are linked to Complete Left Bundle Branch Block (CLBBB). The therapeutic significance of Incomplete Left Bundle Branch Block (ILBBB) is, on the other hand, less well understood. This study looked into the characteristics and outcomes of ILBBB patients, as well as the risk of developing CLBBB. Patients who were diagnosed with ILBBB between July 2013 and April 2018 were included in the study retrospectively. Following that, echo and electrocardiographic exams were performed at the time of ILBBB diagnosis and during follow-up, as well as progression to nonstrict and strict CLBBB. ECGs were recorded with MAC 5,500 ECG recording devices at a paper speed of 25 mm/s and a calibration of 10 mm/mV. QRSD, maximum R-wave amplitude and R-wave peak time (lateral leads), QRS axis, and PR, QT, and QTc duration were all digitally evaluated by the 12SL algorithm.

Discussion

This is the first study that we are aware of that looks at the progression from ILBBB to CLBBB. We show that 26.5%-33.5% of ILBBB patients progress to CLBBB, depending on whether a stringent or nonstrict CLBBB criteria is utilised.

Conclusion

During a median follow-up of 21 months in our single center registry of ILBBB patients, we discovered that up to one third of patients develop CLBBB. During ILBBB, the presence of QRS notching/slurring in the lateral leads was the best predictor of progression to CLBBB, regardless of the CLBBB criteria utilised. The presence of QRS notching/slurring on the twelve-lead ECG during ILBBB indicates a population at high risk of developing CLBBB.

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