Abstract: P575

The definition of left bundle branch block and non-specific intraventricular conduction delay influences long-term mortality in the general population: the health 2000 survey

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Background: Left bundle branch block (LBBB) may represent a benign intraventricular conduction disorder, but it is also a well-established marker of structural heart disease. The definition of LBBB is known to influence the response to cardiac resynchronization therapy, but the significance of the definition of LBBB in the general population is not well-known. A broad QRS complex not typical for right bundle branch block (RBBB) or LBBB is defined as non-specific intraventricular conduction delay (NSIVCD), which has also been associated with worse outcome. The definition of LBBB influences the number of subjects classified as NSIVCD.

Purpose: We determined the prevalence and prognostic impact of three different definitions of LBBB and of NSIVCD in the standard 12-lead ECG in a Finnish population cohort.

Methods: Data were collected from a large nationally representative (random sample) health examination survey of 6,299 subjects. Three different definitions of LBBB were applied: Minnesota, Strauss et al and ESC 2013 definition. NSIVCD was defined as QRS duration =120 ms not meeting RBBB or LBBB criteria. Subjects were followed up for 16.5 years with primary study end points of all-cause and cardiovascular (CV) death.

Results: Minnesota, Strauss and ESC 2013 definitions identified LBBB in 59 (0.9%), 47 (0.7%) and 50 subjects (0.8%), and NSIVCD in 33 (0.5%), 45 (0.7%), 42 (0.7%) subjects, respectively. Chronic heart failure was present in 20.7% and NYHA class II-IV in 34.8% of subjects. After adjustment for age and gender, the hazard ratio (HR) for CV mortality for different definitions of LBBB was 1.93 (p = 0.003) for Minnesota, 1.62 (p = 0.058) for Strauss and 1.56 (p = 0.079) for ESC 2013 criteria. The HR for CV mortality for different definitions of NSIVCD was 2.83 (p = 0.004) for Minnesota, 3.18 (p < 0.001) for Strauss, and 3.47 (p < 0.001) for ESC 2013 criteria. In multivariate analysis, NSIVCD remained as an independent predictor of all-cause (HR 2.02, p = 0.003) and CV mortality (HR 3.39, p < 0.001); the ESC 2013 definition had the highest HR. Compared to LBBB, subjects with NSIVCD were associated with increased CV mortality only for the ESC 2013 definition of LBBB (HR 2.26, p = 0.016).

Conclusions: The definition of LBBB determines the number of subjects in the general population. Regarding mortality, the ESC 2013 definition of LBBB identifies NSIVCD subjects with the worst outcome better than two other LBBB criteria.
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Diagrams:
- Minnesota definition
  - Adjusted HR 1.55 (0.74–3.24)
  - p = 0.230
- Strauss definition
  - Adjusted HR 1.68 (0.87–3.33)
  - p = 0.120
- ESC 2013 definition
  - Adjusted HR 2.30 (1.17–4.58)
  - p = 0.016