Kantonsspital St.Gallen

Differences in presentation and clinical outcomes between left or right bundle branch block and ST segment elevation in patients with acute myocardial infarction

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BACKGROUND
In patients with acute myocardial infarction, the presence of a left bundle branch block or right bundle branch block may be associated with worse prognosis compared to isolated ST segment elevation. However, specificities in clinical presentation and outcomes of acute myocardial infarction patients with left bundle branch block or right bundle branch block are poorly characterized.

METHODS
We analysed acute myocardial infarction patients with left bundle branch block (=880), right bundle branch block (=732) or ST segment elevation without bundle branch block (=15,852) included in the Acute Myocardial Infarction in Switzerland-Plus registry between 2008-2019.

RESULTS
Acute myocardial infarction patients with bundle branch block were older and had more pre-existing cardiovascular conditions compared to ST segment elevation. Pulmonary oedema and cardiogenic shock were most frequent in patients with left bundle branch block (18.8% vs 12.0% for right bundle branch block and 7.9% for ST segment elevation, <0.001). Acute myocardial infarction patients with bundle branch block had more three-vessel (40.6% vs 25.3%, <0.001 vs ST segment elevation) and left main disease (5.6% vs 2.0%, <0.001 vs ST segment elevation). Major adverse cardiac and cerebrovascular events, a composite of reinfarction, stroke/transient ischaemic attack, and death during hospitalization, were highest in acute myocardial infarction patients with left bundle branch block (13.9% vs 9.9% for right bundle branch block and 6.7% for ST segment elevation, <0.05), which was driven by hospital mortality. After multivariate adjustment, however, mortality was similar in patients with left bundle branch block and lower in patients with right bundle branch block, respectively, when compared to ST segment elevation. Mortality was only increased when a right bundle branch block with concomitant STE was present (odds ratio 1.77, 95% confidence interval 1.19-2.64, <0.01 vs ST segment elevation).

CONCLUSIONS
Compared to ST segment elevation, an isolated bundle branch block reflects high-risk clinical characteristics but does not independently determine increased hospital mortality in acute myocardial infarction.

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