Abstract: 552

Natural history of bivalvular functional regurgitation

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Topic(s): Imaging: Valve Disease

Citation:

Introduction: Bivalvular functional regurgitation (BVFR) defined as concomitant mitral and tricuspid insufficiency has not been described or systematically assessed before. The present study therefore sought to define incidence, impact and natural history of BVFR in heart failure with reduced ejection fraction (HFrEF) to provide the foundation for risk assessment and directions for potential treatment strategies.

Methods: We enrolled 1021 consecutive patients with HFrEF under guideline-directed medical therapy and performed comprehensive echocardiographic and neurohumoral profiling. Mitral and tricuspid regurgitation was quantified by an integrated approach comprising valve morphology, width of the proximal regurgitant jet, proximal flow convergence, and pulmonary venous flow. All-cause mortality during a five-year follow up served as the primary endpoint.

Results: Thirty percent of patients suffered from moderate or severe BVFR. Long-term mortality increased with the presence and severity of FR with severe BVFR representing the highest risk-subset (P<0.001). Severe BVFR patients were more symptomatic and displayed an adverse remodeling and neurohumoral activation pattern (all P<0.05). Severe BVFR was associated with excess mortality (Figure 1, Panel A) independently of clinical (adj.HR 1.52, 95%CI 1.39-1.84;P<0.001) and echocardiographic (adj.HR 1.31, 95%CI 1.11-1.54;P=0.001) confounders, guideline-directed medical therapy (adj. HR 1.55, 95%CI 1.35-1.79;P<0.001) and neurohumoral activation (adj.HR 1.31, 95%CI 1.07-1.59;P=0.009). Moderate BVFR (n=99) comprised equal baseline characteristics and similar risk as isolated severe FR. (Figure 1, Panel B) (HR 0.95, 95%CI 0.69-1.30;P=0.73).

Conclusion: This long-term outcome study shows the multi-faceted nature of FR and defines BVFR as an important clinical entity associated with impaired functional class, adverse cardiac remodeling and excess risk of mortality. Moderate BVFR conveys similar risk as isolated severe FR reflecting the deleterious impact of the global regurgitant load on the failing heart and the need of an integrated understanding for risk-assessment.
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