



Presence of Moderate-to-Severe or Severe Mitral Regurgitation is Associated with an Increase in Left Atrial Appendage Emptying Velocity

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PURPOSE

Little is known about the relationship between mitral regurgitation and atrial fibrillation related stroke. In this study, we sought to evaluate the presence of mitral regurgitation as a predictor of left atrial appendage emptying velocity.

BACKGROUND

- Atrial fibrillation (AF) is the most common arrhythmia in the U.S. and mitral regurgitation (MR) is a common valvular disease
- Both AF and MR can coexist
- Left atrial appendage (LAA) dysfunction in the setting of AF may lead to increased thromboembolic events such as stroke
- LAA emptying velocity (LAAev), as assessed on transeophageal echocardiogram (TEE), is a surrogate for susceptibility to LAA thrombogenesis
- Atrial fibrillation is associated with reduced LAA contractility and stasis of blood, while mitral regurgitation is characterized by turbulent flow in the left atrium
- Turbulent flow associated with mitral regurgitation could have a protective effect against the formation of LAA thrombi

RESULTS

- The analysis included 838 TEEs (61.3% men, age 70.2 ± 13.1 years, 88.8% white)
- The mean LAAev was 42.2 ± 21.1 cm/s
- 46 patients (5.5%) had moderate-to-severe or severe MR
- Moderate-to-severe or severe MR was associated with a **7.2 ± 3.2 cm/sec increase in LAAev** ($p=0.02$)
- This remained significant on multivariable analysis, with an estimated LAAev increase of **6.3 ± 3.2 cm/sec** ($p=0.05$) attributable to mitral regurgitation

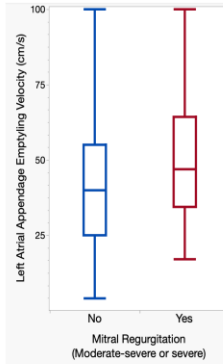


Figure 1. Left atrial appendage emptying velocity (cm/s) in patients with moderate-to-severe or severe mitral regurgitation vs. patients without mitral regurgitation

METHODS

- We searched TEE reports from 2016-2022
- Additional information was extracted from review of TEE imaging, TEE reports, and medical charts
- MR was assessed with TEE and/or TTE
- The association between moderate-to-severe or severe MR and LAAev was assessed using univariate and multivariate linear regressions
- Multivariate predictors included history of AF or atrial flutter, type of AF, hypertension, history of venous thromboembolism, coronary artery disease, peripheral arterial disease, left atrial size, left ventricle emptying velocity, platelet count, eGFR and general anesthesia

CONCLUSION

- Mitral regurgitation increases the LAA emptying velocity, indicating that this form of valvular disease may be **protective against AF-related stroke**
- Mitral regurgitation should be evaluated as a negative risk predictor in future AF-related stroke risk models

REFERENCES

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