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Biophysical Analysis of the Regurgitant Mitral Valve PETER YOON, CHAN WOO KIM, KANG WOO KIM, RICHARD KYUNG, CRG, RICHARD KYUNG TEAM — Mitral valve regurgitation is very common type of heart disorder. Mitral regurgitation is a disease in which the heart valve that separates the upper and lower chambers on the left side of the heart does not close properly. Blood flows backward into the atrium from the lower chamber as it contracts when the mitral valve doesn't close fully. This leads to a decrease in blood flow to the rest of the body, and this may lead to congestive heart failure. This paper assumes blood flow forms into a hemispherical shape as it goes from the left ventricle toward the left atrium. The continuity equation is used with the area of the hemisphere of flow convergence and its velocity. The mitral regurgitant volume is obtained after calculating the area of the effective regurgitant orifice area, and degree of mitral regurgitation is determined. This paper presents a systematic method for the analysis of the regurgitant mitral valve.

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