

Abstract Submitted
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Effects of Pannus Formation on the Flow around a Bileaflet Mechanical Heart Valve¹ WOOJIN KIM, HAEICHEON CHOI, Seoul National University, JIHOON KWEON, DONG HYUN YANG, NAMKUG KIM, YOUNG-HAK KIM, Asan medical center/University of Ulsan, College of Medicine — A pannus, an abnormal layer of fibrovascular tissue observed on a bileaflet mechanical heart valve (BMHV), induces dysfunctions of BMHV such as the time delay and incomplete valve closing. We numerically simulate the flows around an intra-annular type BMHV model with and without pannus formation, respectively, and investigate the flow and bileaflet-movement modifications due to the pannus formation. Simulations are conducted at a physiological condition (mean flow rate of 5 l/min, cycle duration of 866 ms, and the Reynolds number of 7200 based on the inflow peak bulk velocity and inflow diameter). We model the pannus as an annulus with fixed outer radius and vary the inner radius of the pannus. Our preliminary results indicate that the flow field changes significantly and the bileaflet does not close properly due to the pannus formation. The detailed results will be given at the final presentation.

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