

Abstract Submitted
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Divergence-free smoothing for MRV data on stenosed carotid artery phantom flows¹ CHAEHYUK IM, SEUNGBIN KO, SIMON SONG, Hanyang Univ — Magnetic Resonance Velocimetry (MRV) is a versatile technique for measuring flow velocity using an MRI machine. It is frequently used for visualization and analysis of blood flows. However, it is difficult to accurately estimate hemodynamics parameters like wall shear stress (WSS) and oscillatory shear index (OSI) due to its low spatial resolution and low signal-to-noise ratio. We suggest a divergence-free smoothing (DFS) method to correct the erroneous velocity vectors obtained with MRV and improve the estimation accuracy of those parameters. Unlike previous studies on DFS for a wall-free flow, we developed a house code to apply a DFS method to a wall-bounded flow. A Hagen-Poiseuille flow and stenosed carotid artery phantom flows were measured with MRV. Each of them was analyzed for validation of the DFS code and confirmation on the accuracy improvement of hemodynamic parameters. We will discuss the effects of DFS on the improvement of the estimation accuracy of velocity vectors, WSS, OSI and etc in detail

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