Erratum: Material transport in the left ventricle with aortic valve regurgitation [Phys. Rev. Fluids 3, 113101 (2018)]

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We would like to report two corrections that we have recently become aware of for this article. We apologize for any inconveniences this may have caused.

Regarding the first correction, we regret that the values of PRT_2^4 reported on p. 14 of the original paper do not correspond to those produced from Eq. (1). Therefore, on p. 14 of the article, please observe the following correction:

“...The values of PRT_2^4 are 0.08, 0.14, 1.01, 0.26, 0.62, and 0.67, corresponding, respectively, to the cases with a ROA equal to 0%, 3.3%, 5.9%, 8.5%, 17.2%, and 26.1%, showing a monotonic increase...”

Despite this oversight, we would like to note that all interpretations, discussions, and conclusions reported in the article remain unchanged. The previously reported values of 0.04, 0.06, 0.37, 0.11, 0.23, 0.24, and 0.28 (in order of increasing ROA, the regurgitant orifice area), in fact, corresponded to the fraction of particles remaining in the left ventricle for two cardiac cycles or more (with the particles being seeded at the start of the ejection phase), which exhibits the same tendencies as PRT_2^4 . Mathematically, this fraction (f_{2+}) was computed as

$$f_{2+} = \frac{N_{2+}}{N}, \quad (1)$$

where N corresponds to the number of advected particles and N_{2+} corresponds to the number of advected particles satisfying $\tau^* \geq \beta + 1$. Equivalently, these values correspond to the proportion of the three darkest regions in Fig. 8 on p. 13 of the original paper. To compare the tendencies of f_{2+} and PRT_2^4 , please refer to Fig. 1 below.

Regarding the second correction, in Fig. 8(b) on p. 13 of our paper, the percentage for the second darkest region (corresponding to $2 < \tau^* - \beta < 3$) for the severe-2 case should be 6% rather than 5%.

FIG. 1. (a) Fraction of particles remaining in the left ventricle for two cardiac cycles or more with the particles being seeded at the start of the ejection phase. (b) The correct values of PRT_2^4 as given by Eq. (1) in the main text.