Effect of Lateral Position on RBC Deformation Using Immersed Boundary- Lattice Boltzmann Method

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In this article the effect of lateral position on a circular red blood cell (RBC) deformation is investigated by two dimensional numerical simulation. Two different lateral positions (centerline and off-center) are considered. Duo to the difficulties in common numerical methods for simulating this process the lattice-Boltzmann method has been applied. The diameters of microchannel and RBC are 20 μm and 4 μm respectively. Results show that the centerline and off-center RBC are changed into parachute and elliptic shape respectively. Furthermore the results indicate that difference between off-center RBC and its initial shape is much more than centerline RBC.