

عنوان مقاله:

Effect of static magnetic field on the hemodynamic properties of blood flow containing magnetic substances

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خلاصه مقاله:

The use of magnetic fields in targeted drug delivery, especially for treatment of cancers and tumoral regions, is one of the significant techniques in the field of modern methods of treatment. Considering that many vital biological tissues have been located deep in the body, then for targeted drug delivery and effective treatment in these tissues, it is required to bring therapeutic agent to the desired location and focus on that location. The purpose of this study is to evaluate the static magnetic field interaction with hemodynamic properties of blood flow containing a magnetic carrier substance as a bio magnetic fluid. The finite element method (FEM) is used for 2D numerical simulation of magnet with different tip shapes and evaluating of external static magnetic field and its effects on the blood flow with aforementioned properties. The results show that the static magnetic fields generated from magnets with different tip shapes have different effects on the distribution of the fluid velocity field. Furthermore it can be concluded that when magnetic field flux density is concentrated around the magnet tip, the intensity of these hemodynamic effects become more concentrated within the fluid and the location of the magnet tip on the tissue, though the hemodynamic variables .have been changed

کلمات کلیدی:

Static Magnetic Field, Hemodynamic Properties, Blood Flow, Magnetic Particles

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