

## عنوان مقاله:

CFD Study on the Efficacy of Flow Diverter Stent Placement for Cerebral Aneurysms

## محل انتشار:

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## خلاصه مقاله:

The effect of flow diverter (FD) stent placement as a cerebral aneurysm treatment on hemodynamics was systematically investigated via numerical simulation. The aneurysm diameter was set to ۸ mm and ۱۲ mm, with an aspect ratio (AR) of ۱.۲ and ۱.۹, respectively. The curvature of the parent artery was also varied for the following three types: straight, inside, and outside. The blockage ratio of the FD stent was set to ۳۱ %. The results reveal that, regardless of artery shape, the FD stent drastically modifies the flow in the aneurysm, including changing the flow direction in the systolic phase. In most cases, the flow rate into the aneurysm is significantly reduced by the stent; however, in the case of a straight artery, the flow rate is increased for the aneurysm model with AR = ۱.۹. The oscillatory shear index (OSI) generally increases owing to FD stent placement while the wall shear stress is substantially decreased. In particular, a high OSI area is widely distributed in the large aneurysm sac (AR = ۱.۹) for straight and internal artery cases. Although idealized aneurysm models are employed in the present study and further parametric studies are required, particularly with respect to stent configuration, these facts may explain the unexpected outcome in some (but not all) large aneurysm cases.

## کلمات کلیدی:

Cerebral aneurysm, CFD, Flow diverter stent, Hemodynamics, Flow rate

## لینک ثابت مقاله در پایگاه سیویلیکا:

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