

# **Abstract**

**Amr A. Mohamed Mohamed Hassan**

## **Influence of Parent Vessel Dominancy on Fluid Dynamics of Anterior Communicating Artery Aneurysms.**

Background Parent vessel plays an important role in aneurysm formation and rupture. The diameter of either the A1 arteries is the peculiar key controlling the flow of the anterior communicating artery (ACOMA) aneurysms (ANs). Objective The purpose is to study the effect of parent vessel dominancy, that is, the diameter of the A1 artery, on the flow characteristics of the ACOMA ANs. Methods Numerical simulations for the flow patterns in six artificial models have been studied. Three models are designed with aneurysms and three models without. The two A1s were equal in two models. In the other two models, the nondominant A1 diameters were decreased by 50%. Again, the nondominant A1s were decreased by another 50% in the last two models. Each pair was designed with and without aneurysms in the ACOMA.