

Analysis and Clinical Aspects of Bifurcated Femoral Artery

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DESCRIPTION

Peripheral Artery Disease (PAD) is more likely to have Computer-Aided Design (CAD), Cardiovascular Disease CVD, Heart Disease, and Cerebral Vascular Disease (CCVD). Numerous PAD patients also suffer from diabetes, hypertension, and anemia in addition to these arterial diseases. These comorbidities require further investigation. Clinical studies using the threshold of ankle brachial index were conducted to predict risk factors associated with these conditions. When PAD patients also have hypertension, they have a 50-400% chance of developing Cerebrovascular and Cardiovascular Diseases (CCVD). Additionally, on coronary and carotid arteries and bifurcated arteries have blockages at the bifurcation. Likewise, the combination of PAD, diabetes, and additional complications carries the greatest risk. Women and people with diabetes have smaller-diameter vessels in the common femoral artery. Therefore, the femoral head is described as the ideal location for punctures. Exercise can induce the flow-mediated vasodilation method into the femoral artery because smoking exacerbates the problems already present in the artery. As a result, smoking could be disregarded. Additionally, anemia is a significant issue that raises mortality rates in people with acute myocardial infarction. An analysis of the intracranial artery's bifurcation before and after stent placement was done, In order to determine how the placement of stents affects the flow dynamics at the bifurcation, the velocity variations and the wall shear stresses are investigated and contrasted. Therefore, a number of medical conditions have a significant impact on arteries affected by atherosclerosis. The PAD and co-morbidly affected bifurcated

blocked femoral artery model is used in the current work to compute peak wall shear stresses and velocities.

Clinical aspects

The percentage variation between different combinations of angle at the bifurcation will have the maximum percentage variation in terms of stress is noted between 45 and 60 degrees of bifurcation in a hypertension which is effected femoral artery. The percentage variation between angles that exhibits low stresses is observed between 60 and 30 degree bifurcation. In case of conditions with hypertension and anemia, the maximum variation in stress values is recorded between 45 and 60 degree bifurcation. The least difference in stress values is mostly between 60 and 30 degree. In the normal blood pressure and high stresses in stage-2 high blood pressure. The maximum difference in velocity in high blood pressure affected femoral artery is noted between 60 and 30 degree bifurcation in the velocity is in between 60 to 30 degree bifurcation artery with high blood pressure and anemia as well diabetes. The least percentage variation in velocities in high blood pressure, anemia and high blood pressure affected femoral arteries are recorded between 45 and 30 degree bifurcation. In contrast, in diabetic and high blood pressure affected femoral artery, the least percentage difference in velocity is observed between 45 and 60 degree bifurcation. Patients will have more difficulty during exercise in rehabilitation programs when they have comorbid conditions. Patients with low ankle brachial index and diabetics who require insulin are not permitted to participate in research exercise programs. Patients with high blood pressure and anemia will also suffer with some side effects.

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