

Volume Changes and Sac Pressure Correlations in Patients after Endovascular Aortic Aneurysm Repair

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The endovascular exclusion of an abdominal aortic aneurysm, endovascular aneurysm repair (EVAR), has gained much popularity especially since the positive EVAR 1 and the DREAM trials. The goal with the treatment is to reduce the pressure acting on the weakened aneurysmal wall, preventing rupture and death. The pressure in the excluded aneurysmal sac declines after successful EVAR to about 30 to 50% of the systemic pressure with a pronounced decrease of the pulsatile pressure. EVAR also reduces the shear stress on the wall, measured as pulsatile wall motion. In about 75 to 80% of the cases, a decrease in the aneurysm diameter, beginning 3 months post-EVAR, is also to be recorded. Some reports noticed a volume decrease of the aneurysmal sac prior to diameter changes, maybe as a result of the decreased pressure inside the sac. Several experimental investigations have highlighted the influence of various factors on the intra-aneurysmal pressure, such as aneurysm diameter, graft material used, and the compliance of the aneurysm wall. We have previously presented data showing that the larger the volume of the sac, the lesser the pressure in the aneurysm. The diameter change during follow-up was not possible to correlate to the intraoperative aneurysm sac pressure, perhaps owing to the small sample size and the several factors influencing the sac pressure.

The presentation will analyze the correlation between intra-aneurysmal pressure and volume changes over time during follow-up in patients having undergone EVAR of an abdominal aortic aneurysm.