

The Effect of Stent Design on the Restenosis Rate

Aswini K. Muttyam and Linxia Gu

South Dakota School of Mines and Technology, Rapid City, South Dakota, USA

Within 6 months from the initial procedure, restenosis is observed in 40% of the cases treated with coronary stenting. Exact reasons for restenosis are yet to be explored. Stenting is a mechanical process which causes large stress in the arterial wall. This

may lead to the activation of stent related stenosis. The primary objective of this study is to investigate the relation between the stresses developed in the arterial wall and the restenosis rate. A three-dimensional model based on finite element method has been built which includes the stent, the plaque and the artery. The simulated result shows high stress concentrations at the contact areas of the stent and the plaque. The over flaring of the end struts causing arterial trauma may lead to restenosis.