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SMOKING IS STRONGLY ASSOCIATED WITH FRACTURE OF NITINOL SELF EXPANDING STENTS IMPLANTED IN THE SUPERFICIAL FEMORAL ARTERY

Poster Contributions

Poster Hall B1

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Background: Stent fracture (SF) in nitinol self expanding stents used for treatment of femoro-popliteal obstructive disease has been identified as one of the possible causes of in stent restenosis (ISR) in prior studies. The predictors of stent fracture itself has been poorly studied.

Methods: Ninety seven consecutive patients (105 limbs) with angiographically confirmed obstructive in stent restenosis in the SFA who had previously undergone stenting with nitinol stents were retrospectively studied. Stents were evaluated by fluoroscopy in at least 2 orthogonal views and association with demographic and angiographic characteristics were analyzed. Univariate and multivariate logistic regression analyses were performed

Results: The mean stented length at index procedure was 201.7 ± 103 mm. At 15.5 months of mean follow up, SF was noted in 31 limbs (29.5%). Univariate analysis demonstrated that current smoking (HR: 4.78 [1.93-11.82] p- 0.0007), male gender (2.58 [1.05-6.34], p - 0.0389) and stentwidth (1.99 [1.24-3.178], p- 0.004) were associated with stent fracture. On the other hand, age, history of diabetes mellitus, hypertension, stent length and number of stents were not associated with stent fracture. On multivariate analysis, only smoking was significantly associated with stent fracture (3.10 [1.10-8.75], p- 0.032), while stent width demonstrated a trend towards statistical significance (1.52 [0.91-2.53], p -0.10).

Conclusion: We demonstrate for the first time in our study that smoking is strongly associated with stent fracture. We hypothesize that this observation maybe secondary to changes in vessel elasticity and calcification secondary to smoking.