ELECTRON MICROSCOPE EXAMINATION OF POLYMER COATED HYDROPHILIC GUIDE WIRES USED FOR SIDE BRANCH PROTECTION DURING BIFURCATION CORONARY INTERVENTION

Poster Contributions
Hall C
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Background: Polymer coated hydrophilic guidewires are routinely deployed for side-branch protection during bifurcation stenting. Isolated reports of polymer shearing raise concern for potential of these wires to cause embolic complications. We performed electron microscopic analysis of these wires in a series of patients undergoing bifurcation stenting.

Methods: 20 guide wires (10 - HI TORQUE WHISPER; 10 - RUNTHROUGH NS) used for side-branch protection during consecutive native vessel bifurcation interventions were examined. Secondary and Back scatter electron imaging were performed using a scanning electron microscope. Areas of polymer shearing were quantified using Image Pro Plus 7.0 software.

Results: Demographic / clinical features were similar in both groups of patients. Stent length was higher in the Whisper wire group (24.9 ± 3.4 v 20.3 ± 2.4 mm; p=0.02). All Whisper wires and 6 Runthrough wires showed evidence of polymer shearing.

Area of polymer sheared (0.13 ± 0.05 v 0.03 ± 0.01 mm2; p=0.026) and length of wire affected (8.2 ± 2.4 v 2.7 ± 1.0 mm; p=0.053) were greater for Whisper wires. 2 Runthrough wires showed marked stretching of the Nitinol coil. Polymer shearing did not correlate with severity of calcification, maximum balloon inflation or length of stent.

Conclusions: Both types of guide wires showed signs of polymer shearing. Our study suggests that Runthrough wire may be safer in this respect but larger studies are needed to verify this finding.