INTIMAL DISRUPTION IS ASSOCIATED WITH LATE STENT THROMBOSIS: AN OPTICAL COHERENCE TOMOGRAPHY STUDY

ACC Poster Contributions
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Authors: Yuetsu Kikuta, Hideo Takebayashi, Shigeki Hiramatsu, Kenji Goto, Masahito Taniguchi, Sunao Kodama, Katsumasa Sato, Yasukazu Fujiwara, Shigeki Nishiyama, Seiichi Haruta, Fukuyama Cardiovascular Hospital, Fukuyama, Japan

Background: Little is available on the neointimal characteristics of the lesions with late stent thrombosis (ST) after coronary-artery stenting.

Methods: We evaluated 30 consecutive nonostial stent failure lesions in 30 patients (5 ST and 25 restenoses) by optical coherence tomography.

Results: The median age was 68 years (interquartile range, 58 to 75 years), 28 patients (93%) were male, and 15 (50%) were diabetic. At the index procedure, 11 patients (37%) were treated with drug-eluting stents (DES), and 19 (63%) patients with bare-metal stents (BMS). By the time of stent failure, 16 patients (53%) were treated with dual antiplatelet therapy (APT), 13 (44%) with single APT, 1 (3%) without APT, and 1 (3%) with clopidogrel plus a proton pump inhibitor. The median period during the index procedure and stent failure was 619 days (range, 272 to 2844 days). One stent failure patient (3%) presented with ST-segment elevation myocardial infarction, 4 (14%) with unstable angina, and 25 (83%) with stable angina. Incomplete stent apposition was detected in 6 lesions (20%). The risk of ST (n = 5) versus restenosis (n = 25) was increased for the lesions with low minimum lumen area (mean ± SEM, 0.77 ± 0.19 cm² versus 1.46 ± 0.10 cm²; p = 0.02), high % intima hyperplasia area (91.5 ± 0.02% versus 80.8 ± 0.01%; p = 0.002), intimal disruption (80% versus 24%; p = 0.03), and irregular shape (80% versus 20%; p = 0.02). Lesions with intimal disruption (n = 10) versus lesions without (n = 20) raised the rate of the lesions with lipid-laden intima (60% versus 20%; p = 0.04), thin-cap fibroatheroma-like neointima (60% versus 10%; p < 0.01), thrombus (90% versus 50%; p < 0.05), irregular shape (60% versus 15%; p = 0.03), and lowered high-density lipoprotein cholesterol level (1.02 ± 0.05 mmol/L versus 1.26 ± 0.10 mmol/L; p = 0.03). Late stent failure increased the rate of lipidic neointimal change. There was no significant difference in the rate of ST or intimal disruption between the patients treated with DES and those treated with BMS.

Conclusions: Intimal disruption is associated with late ST. Atherosclerotic neointima could cause disruption of the restenotic tissue.