GRAYSCALE INTRAVASCULAR ULTRASOUND EVIDENCE OF IN-STENT NEOATHEROSCLEROSIS 3 YEARS AFTER DRUG-ELUTING STENT IMPLANTATION

i2 Poster Contributions
Ernest N. Morial Convention Center, Hall F
Monday, April 04, 2011, 9:30 a.m.-10:45 a.m.

Session Title: Intravascular Diagnostics II
Abstract Category: 3. Intravascular Diagnostics
Session-Poster Board Number: 2509-573

Authors: Diaa El din Abd El Hakim, Gary S. Mintz, Sr., Reni Rusinova, Sr, Giora Weisz, Sr, Varinder P. Singh, Sr, Martin B. Leon, Sr, Gregg Stone, Sr, Jeffery Moses, Sr, Akiko Maehara, Sr, New York Presbyterian Hospital, Columbia University Medical Center, New York, NY, Cardiovascular Research Foundation, New York, NY

Background: Neointimal tissue is typically hypoechoic and concentric and peaks at 6 months after implantation. However, there is little data on late in-stent neointima.

Methods: We used baseline and follow-up intravascular ultrasound (IVUS) to assess 27 sirolimus-eluting stented (SES) lesions (25 pts) 3.2±0.9 yrs after implantation.

Results: Patient age was 65.8±11.4 yrs and 90% were males, 40.7% were diabetics. SES lesions were in 19 LADs, 5 LCXs, and 3 RCAs. Minimum lumen area (MLA) decreased significantly from 6.1±1.31mm² post-implantation to 3.6±1.5mm² at follow-up, p=0.003. Overall, 20 SES lesions (74%) had in-stent neointimal hyperplasia (NIH); and 9 NIH contained calcification (Figure). Two contained multiple calcifications, 16 were accompanied by calcification behind the stent that increased from 57±38° post-implantation to 93±39° at follow-up, p=0.001, and 5 calcifications were located proximal to a stent edge in association with progression of calcification behind the stent. One SES lesion had chronic stent recoil at a bifurcation location with a decrease in stent area from 5.6 mm² to 2.5 mm², 2 SES lesions had partial stent fracture, 2 SES lesions had persistent stent malapposition, and 2 SES lesions had late acquired stent malapposition.

Conclusions: Calcified in-stent NIH occurs 3 yrs after SES implantation. Calcified NIH supports the concept of in-stent neointimal neoatherosclerosis late after SES implantation.