were obtained with digital acquisition systems. We compared 13 images: 2 left main cor-

Background: Intra coronary imaging with optical coherence tomography (OCT) is limited by

Hyperemic Pulse Transmission Coefficient: A Novel Index for the Functional Assessment of Microvascular Integrity Following Percutaneous Coronary Interventions

Rest PTC Hyperemic PTC P value Raw PTC Hyperemic PTC P value

60A ABSTRACTS - Angiography & Interventional Cardiology JACC March 19, 2003

1151-201 Benefits of Intracardiac Echocardiography in the Guidance of Percutaneous Transcatheter Closure of Atrial Septal Defect and Patent Foramen Ovale

Background: Both transesophageal echocardiography (TEE) and intracardiac echocar-

Methods: We retrospectively compared 22 TEE guided vs. 23 ICE guided PTC in 45

Results: Sensing probes of the semipermanent pacing catheter were placed at the mid-stent and distal levels. Incremental balloon inflation caused significant changes in stent position: median 14% (IQR 10-19) for the proximal stent and 23% (IQR 15-30) for the distal stent. The sequential inflation pattern caused the proximal stent to retract and the distal stent to expand. The stent balloon was inflated to 16 atm for 30 seconds in each increment. The stents were deployed after achieving a balloon to stent ratio of 1.2:1. Post-dilatation was performed with a balloon catheter with a larger diameter than the stent. Post-dilatation was performed in 14/28 (50%) lesions.

Group A 0.16±0.01 0.76±0.04 0.03±0.02 <0.01

1151-200 Quantitative and Qualitative image Comparison Between Intravenous Ultrasound and Optical Coherence Tomography

Methods: OCT provides unique arterial anatomic information. The development of ischemia as a conse-

Background: Optical coherence topography (OCT) represents a promising new technol-

Results: OCT imaging using an imaging wire during intracoronary balloon inflation is feasible and safe. High quality images can be obtained and provide unique arterial anatomic information. The development of ischemia as a consequence of balloon inflation limits the duration of imaging.

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Background: Hyperemic pulse transmission coefficient (PTC) is a novel non-hyperemic parameter that can assess the transmission of high frequency components of the pressure signal through a stenosis. It correlates with fractional flow reserve and increases after percutaneous coronary intervention (PCI). Hyperemic PTC may reflect the change in resistance to flow imposed by acute microvascular dysfunction and may identify patients at risk for ischemia.

Methods: PTC was compared in 2 groups: In group A (5 pigs) we performed a single thermographic scan for a total length of 40 mm, using a pullback speed of 0.3 mm/sec. In group B we performed a single pullback (same length and speed) of a stent (3.0×16 mm) catheter without inflating it. Animals were sacrificed immediately, and histology and electron microscopy were performed.

Additionaly, we measured the force applied on the arterial wall using a very sensitive pressure sensor (Kem Inc., Germany). Measurements were also performed in the case of commonly used coronary guidewires and catheters.

1151-201 Mechanical Safety of the Contact With the Wall Coronary Thermography Methods: Comparison With Catheters and Guidewires

Methods: As a thermographic system we used the Thermosense (Thermoscan Medical Instruments, UK) device. We studied a thermography catheter with 4 thermistor sensors arranged at the end of super-elastic projections. When the catheter is in a measuring configuration, the sensors come in close contact with the arterial wall and a motorized pusher is engaged to map the three dimensional distribution of temperature. We studied the proximal right coronary artery in 10 non-atherosclerotic pigs. Pigs were separated in 2 groups: In group A (5 pigs) we performed a single thermographic scan for a total length of 40 mm, using a pullback speed of 0.3 mm/sec. In group B we performed a single pullback (same length and speed) of a stent (3.0×16 mm) catheter without inflating it. Animals were sacrificed immediately, and histology and electron microscopy were performed.

Results: Scanning electron microscopy showed that in the case of thermography the sensors caused impairment of the endothelium that was strictly limited to the sensor-wall contact area, while the basic membrane was left unharmed. Denudation was worse in the case of the unfilled stent catheter. Wall pressure measurements showed that contact thermography does not apply higher wall pressures than standard guidewires and catheters.

Conclusions: All intra coronary catheters have an impact on the endothelium and its function. However, when these devices are carefully used, risks of events are extremely low.

1151-199 Qualitative Results of Intracoronary Imaging During Balloon Inflation With Optical Coherence Tomography in Humans

Methods: We retrospectively compared 22 TEE guided vs. 23 ICE guided PTC in 45

Methods: We retrospectively compared 22 TEE guided vs. 23 ICE guided PTC in 45

Conclusions: OCT compared provide unique quantitative image measures with IVUS but defined qualitative features more precisely.