**TCT-480**

**Delayed Coronary In-stent Restenosis and Disease Progression in Patients with Single Vessel Coronary Artery Disease**

*Mariano Albertal[1], Leonardo Seoane[1], Gerardo Nau[1], Alfonsina Candiello[1], Lucio T. Padilla[2], Jorge Belardi[2], Fernando Cura[1]*
*[1]Instituto Cardiovascular de Buenos Aires, Buenos Aires, Buenos Aires, [2]Instituto Cardiovascular de Buenos Aires, Buenos Aires, Argentina*

**Background:** The impact of delayed clinical in-stent restenosis on the late re-interventions (RI) rate is currently unknown. To address this issue, we analyzed the long-term clinical outcome in patients undergoing stent implantation for single de novo lesions who were event-free after one year of follow-up, with an especial emphasis on the rate of delayed restenosis and disease progression.
**Methods:** Retrospective analysis in patients who underwent single-vessel stenting from January 2004 to December 2006 (N=1385). In order to control for confounders, we excluded patients with multivessel disease and patients who had RI during their first year of follow-up (N=1108). From November 2012 to March 2013, we contacted all patients included in the study (n=277) and collected the following events: cardiac death, RI, target lesion RI (TLR) and RI to other coronary segments due to disease progression. Very late TLR was defined as TLR events occurring after 3 years of follow-up, while isolated TLR was defined as TLR events occurring without RI due to concomitant disease progression.
**Results:** Mean age was 60.3±10.1 years, 20.6 % were females, 16.2% diabetics and 72% had an acute coronary syndrome. 21.5% received a drug-eluting stent and 78.5 % a bare-metal stent (50.2 % to the left anterior descending, 26% to the circumflex and 23.8% to the right coronary artery). Follow-up was available in 97.9% (92% with 7 years, mean follow-up 6.3±3.2 years). During follow-up, 89.2% of patients had at least one non-invasive exercise test during follow-up (mean test performed per patient 3.2±1.8), 19.8% of those patients had a positive ischemic test at follow-up. 37.9 % (n=105) of patients underwent diagnostic coronary angiography, while 16% (n=44) required RI (Table). Cardiac death occurred in 2.8% of patients.
**Conclusions:** 1) Disease progression in patients with single vessel obstructive coronary artery disease is an infrequent phenomenon but constitutes the dominant cause for late RI. 2) Delayed clinical restenosis is rare. It's very late manifestation, typically due to in-sent neoatherosclerosis, appears to have a very low clinical impact at least until the seventh year of follow-up.

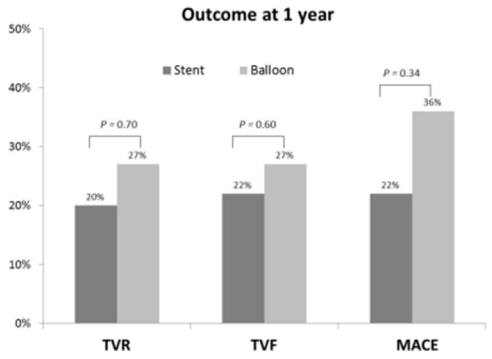
| | N | % Total | % RI |
|---|---|---|---|
| Disease progression | 37 | 13.3 | 84 |
| TLR | 16 | 5.8 | 36.3 |
| Very late TLR | 7 | 2.5 | 15.9 |
| Isolated TLR | 7 | 2.5 | 15.9 |
| Very late, isolated TLR | 3 | 1.1 | 6.8 |

**TCT-481**

**Treatment of "resistant" in-stent restenosis in the drug-eluting era: comparison of repeat stent versus balloon only strategy**

*Marco G. Mennuni[1], Kleanthis Theodoropoulos[2], Omar A. Meelu[3], Pedro R. Moreno[4], Prakash Krishnan[5], Jason Kovacic[2], Usman Baber[6], Melissa Aquino[7], Samantha Sartori[6], Robert T. Pyo[8], Joe Sweeny[5], George Dangas[9], Roxana Mehran[10], Samin Sharma[6], Annapoorna Kini[11]*
*[1]Istituto Clinico Humanitas, Rozzano, Milan, Italy, [2]Mount Sinai Medical Center, New York City, NY, [3]The Icahn School of Medicine at Mount Sinai, New York, NY, [4]Mount Sinai Medical Center, New York, New York, [5]Mount Sinai School of Medicine, New York City, NY, [6]Mount Sinai School of Medicine, New York, NY, [7]The Icahn of Medicine at Mount Sinai, New York, NY, [8]Mount Sinai medical Center, New York City, NY, [9]Mount Sinai, New York, New York, NY, [10]Mount Sinai Hospital, New York, NY, [11]Cardiovascular Institute, Mount Sinai Medical Center, New York, USA, New York City, NY*

**Background:** In the drug-eluting stent era, in-stent restenosis (ISR) followed by a new ISR recurrence, is defined "resistant" ISR (R-ISR). This event represents a rare yet challenging clinical problem. To date there are no published studies that evaluated the best percutaneous treatment for these patients.
**Methods:** We identified 213 lesions in 201 patients treated with DES who presented with R-ISR between 2003 and 2011 at our institution. The "balloon only" approach with cutting, scoring or non-compliant balloon (n=107, 53%) was compared with coronary stent implantation (n=94, 47%) in terms of target vessel revascularization (TVR), target vessel failure (TVF), and a composite of major adverse cardiac event (MACE) as death, myocardial infarction (MI) at 1-year.
**Results:** The baseline clinical characteristics were well balanced between two percutaneous coronary intervention strategies. However the patients treated with "balloon-only" presented with a worse baseline TIMI flow (TIMI 0-1 13% vs. 5%, P=0.01), and had higher residual diameter stenosis post-PCI (19% ± 20 vs. 9%± 11%, P<0.01). At 1-year follow-up, the rates of MACE, TVR, and TVF were not significantly different among the two strategies (Figure 1.).
**Conclusions:** Clinical outcomes after treatment of R-ISR with new stent implantation does not appear to differ significantly compared to a "balloon only" technique.




**TCT-482**

**"Resistant" In-Stent Restenosis in the Drug-Eluting Stent Era: An Angiographic Description and Outcomes**

*Marco G. Mennuni[1], Kleanthis Theodoropoulos[2], Nisharahmed I. Kherada[3], Melissa Aquino[4], Usman Baber[5], Samantha Sartori[5], Swapna Sayeneni[2], Birju Narechania[6], Pedro R. Moreno[7], Prakash Krishnan[8], Jason Kovacic[2], Robert T. Pyo[9], Joe Sweeny[8], George Dangas[10], Roxana Mehran[11], Samin Sharma[5], Annapoorna Kini[12]*
*[1]Istituto Clinico Humanitas, Rozzano, Milan, Italy, [2]Mount Sinai Medical Center, New York City, NY, [3]Mount Sinai Medical Center, New York, NY, [4]The Icahn of Medicine at Mount Sinai, New York, NY, [5]Mount Sinai School of Medicine, New York, NY, [6]Mount Sinai Heart, New York, NY, [7]Mount Sinai Medical Center, New York, New York, [8]Mount Sinai School of Medicine, New York City, NY, [9]Mount Sinai medical Center, New York City, NY, [10]Mount Sinai, New York, New York, NY, [11]Mount Sinai Hospital, New York, NY, [12]Cardiovascular Institute, Mount Sinai Medical Center, New York, USA, New York City, NY*

**Background:** In the drug-eluting stent era, in-stent restenosis (ISR) followed by ISR recurrence, represents a rare yet challenging clinical problem. The definition and angiographic patterns of this phenomenon have not yet been reported.
**Methods:** We defined "resistant" DES ISR (R-ISR) as the second occurrence of ISR after initial successful treatment with DES. We identified 213 lesions in 201 patients treated with DES who presented with R-ISR between 2003 and 2011 at our institution. We reviewed all angiograms to assess any patterns borne from either the first and second ISR episode as described by the Mehran classification.
**Results:** Patients with "resistant" ISR were more frequently male (72%) with a mean age of 63 years. They presented with a very high frequency of diabetes (56%), overweight (70%), and chronic kidney disease (35%). Most lesions were bifurcation (55%) with moderate to severe calcification (58%). R-ISR presented after 34 months from the first procedure, with a focal pattern (≤10 mm in length) in 78%, and diffuse pattern (>10 mm in length) in 22% of the patients. The rates of all-cause mortality, MI, or target vessel failure (TVF) at 1-year were 4%, 3%, and 18%, respectively. Patients with paclitaxel-eluting stent (PES) R-ISR showed a higher rate of ischemic events compared with other type of stents at 1-year follow-up (Table 1.).
**Conclusions:** Patients with "resistant" DES ISR comprise a very high-risk population with suboptimal outcomes that are characterized by a high rate of ischemic adverse events. R-ISR after PES appears to result in worse outcomes compared with other DES.

POSTERS