patients underwent multislice computed tomography (MSCT) prior to the procedure. By protocol we pre-defined the same 10 anatomic characteristics by conventional angiography (CA) and MSCT based on previously published independent predictors of failure and our team experience. Two-experienced interventional cardiologist and two imaging specialists, respectively, analysed CTO characteristics. Prospectively, the Japanese-CTO score complexity was calculated by CA and MSCT.

**Results:** According to the CA-Japanese-CTO score of complexity 47% of lesions were classified as difficult or very difficult. By CA 52% were severe calcified lesions. In most cases (88%) the strategy was antegrade. The total stent length implanted per lesion was of 51.6 ± 20.5mm. In all case last generation DES was implanted. Success guidewire crossing was 86.4% and the overall success rate was 85.4%. Significant calcification by CA (37.5% vs. 11.5%, P = 0.001) and by MSCT (> 50% cross sectional area) (20.6% vs. 0.0%, P = 0.016) was more prevalent in failed cases. It is important to note a new anatomic characteristic “bad landing zone” (defined as distal vessel just after the CTO exit point, with reference diameter ≤ 2mm) by CA (30.5% vs. 63.3%, P = 0.01) was more prevalent in failed cases. By multivariable logistic regression, the only independent predictor of procedural failure was the CA-J-CTO score (odds ratio (OR) 2.5, 95% confidence interval (CI) 1.37-4.59, p = 0.003, for each unit increase in J-CTO score) and silent ischemia as baseline clinic status before PCI-CTO (OR 4.71, CI 1.23-17.95, p = 0.02).

**Conclusions:** According to the results of this prospective study, the Japanese-CTO score of complexity assessed by conventional angiography had a significant impact in procedural outcomes.

**TCT-214**

Procedural outcomes of CTO specific intravascular ultrasound Navifocus WR-guided PCI for CTO

Satoshi Kameda1, Atsutoru Okamura1, Motoo Date2, Hironori Naga1, Katsumi Iwakura1, Kenshi Fuji1
1Sakurabashi-Watanabe Hospital, Osaka, Japan

**Background:** At percutaneous coronary intervention (PCI) for chronic total occlusion (CTO), the first guidewire is sometimes inserted into the subsitent space, and in this situation the strategy of intravascular ultrasound (IVUS)-guided wire, that is leading the second guidewire into the true lumen under observing by IVUS from the outside, was the last procedure. The IVUS for this usage. Therefore we have produced CTO specific IVUS, which is named Navifocus WR, with Terumo Corp (Tokyo, Japan). It has a small profile transducer (2.5F) with short length of tip to transducer (9mm) and will be inserted into subsitent space with minimum vessel damage. It has been approved since September in 2012 in Japan.

**Methods:** From September in 2012 to March in 2014, in 16 CTO cases, Navifocus WR was used during the antegrade PCI approach after the first guidewire was inserted into the subsitent space. We succeeded the Navifocus WR-guided antegrade wiring in (63%) of 16 cases. The patients were divided into 2 groups based on the success or failure of Navifocus WR-guided antegrade wiring.

**Results:** The reference diameter was larger in the success group compared to the failure group (2.87±0.73 mm vs. 2.43±0.39 mm, P=0.2). The procedural time of IVUS-guided wiring was significantly shorter in the success group compared to the failure group (20.2±27.2 minutes vs. 58.5±41.2 minutes, P=0.04)). In the failure group, we changed to the retrograde approach, etc. and succeeded the PCI procedure in 15 (94%) of 16 cases.

**Conclusions:** At CTO PCI, the success rate of Navifocus WR-guided wiring was acceptable and with the combination of the retrograde approach, etc the high success rate could be achieved.

**TCT-215**

Impact of Gender on the Outcomes of Percutaneous Coronary Intervention of Chronic Total Occlusions: insights from a multicenter registry

Bavana V. Rangan1, Georgios Christopoulos2, Richard M. Wyman3, Khaldoon Al-suwaid1, J. Aaron Grantham1, William Lombardi4, Dimitri Karmpaliotis number, James Lee5, Nicholas Lenbo6, David Kandzari6, Anna Kotsis7, Aristotelis Papamani7, Kalynych Anna8, Harold Carlson9, Craig Thompson17, Santiago Garcia11, Subhash Banerjee12, Emmanouil Brilakis13

1VA North Texas Healthcare System and UT Southwestern Medical School, Dallas, TX, 2Dallas VA Medical Center and UT Southwestern Medical School, Dallas, TX, 3University of Texas Southwestern Medical Center & Dallas VA Medical Center, Dallas, TX, 4Texas Heart Institute, Houston, TX, 5Torrance Memorial Medical Center, Torrance, USA, 6Appleton Heart Institute, Appleton, WI, 7Associate Professor of Medicine, Kansas City, United States, 8PeaceHealth St. Joseph Medical Center, Bellingham, United States, 9UTF/ Columbia University Medical Center, New York, NY, 10Piedmont Heart Institute, Atlanta, GA, 11Piedmont Heart Institute, Atlanta, GA, 12Piedmont Heart Institute, Atlanta, GA, 13University of Texas Southwestern Medical Center, Dallas, TX, 14Vanderbilt University School of Medicine, Nashville, TN, 15University of Minnesota and Minneapolis VA Medical Center, Minneapolis, MN, 16UT Southwestern Medical Center and VA North Texas Health Care System, Dallas, TX, 17VA North Texas Healthcare System and UT Southwestern Medical Center, Dallas, United States

**Background:** We sought to investigate the impact of gender on outcomes of percutaneous coronary intervention (PCI) for chronic total occlusions (CTO).

**Methods:** We examined 2,038 patients who underwent CTO PCI between January 2006 to May 2014 at 6 high volume CTO PCI centers in the United States. Clinical, angiographic and procedural characteristics were compared between male and female patients.

**Results:** Women represented 15% of the CTO PCI population. Significant differences were observed in the baseline characteristics of the study patients (Table). Women were more likely to have diabetes and to have the right coronary artery as CTO target vessel, and less likely to have prior myocardial infarction or prior coronary artery bypass graft surgery (Table). Technical and procedural success were higher among women, even though procedural and fluoroscopy time, air kerma radiation exposure, and contrast administration were lower among women.

**Conclusions:** In a large multicenter CTO PCI registry, women constituted 15% of the patients. Technical and procedural success rates were higher among women.

**Clinical, Angiographic and Procedural Characteristics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall (n=2838)</th>
<th>Female (n=295)</th>
<th>Male (n=2543)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>64.8±10.1</td>
<td>64.8±10.7</td>
<td>64.9±9.9</td>
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</tr>
<tr>
<td>Diabetes (%)</td>
<td>41</td>
<td>46</td>
<td>40</td>
<td>0.081</td>
</tr>
<tr>
<td>Prior myocardial infarction (%)</td>
<td>41</td>
<td>34</td>
<td>42</td>
<td>0.013</td>
</tr>
<tr>
<td>Prior coronary artery bypass graft surgery (%)</td>
<td>37</td>
<td>31</td>
<td>38</td>
<td>0.030</td>
</tr>
<tr>
<td>CTO Target Vessel (%)</td>
<td>0.004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right Coronary Artery (%)</td>
<td>57</td>
<td>62</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Contrast (ml)</td>
<td>291±145.3</td>
<td>264±149.5</td>
<td>296±151.5</td>
<td>0.001</td>
</tr>
<tr>
<td>Procedure time (min)</td>
<td>116.9±63.1</td>
<td>101.3±52.0</td>
<td>119.3±64.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Fluoroscopy time (min)</td>
<td>44.7±30.6</td>
<td>40.2±26.1</td>
<td>45.5±31.2</td>
<td>0.003</td>
</tr>
<tr>
<td>Air Kerma radiation exposure (Gray)</td>
<td>4.4±3.2</td>
<td>3.7±2.8</td>
<td>4.5±3.2</td>
<td>0.005</td>
</tr>
</tbody>
</table>

**TCT-216**

Delayed coverage of drug eluting stents after interventional recvascularization of chronic total occlusions assessed by optical coherence tomography: the ALSTER-OCT-CTO registry

Christian H. Heeger1, Andreas Basjahn2, Laura Hildebrand1, Felix Leschke1, Maximilian Fenks1, Felix Meinecke1, Karl-Heinz Kuck1, Martin W. Bergmann1
1St. Georg Department of Cardiology, Hamburg, Hamburg, 2HealthTwist GmbH, Berlin, Berlin, 3St. Georg Department of Cardiology, Hamburg, Germany, 4Asklepios Klinik St. Georg, Hamburg, Hamburg, 5Cardiology, Hamburg, Germany, 6Asklepios Clinic St. Georg, Hamburg, Germany

**Background:** Following percutaneous coronary interventions (PCI) for recvascularization of chronic total occlusions (CTO), patients are at increased risk for stent thrombosis (ST). Delayed drug eluting stent (DES) coverage was previously shown to be related to ST. Using optical coherence tomography (OCT) we tested the hypothesis, that CTO-PCI is associated with delayed DES coverage compared to non-CTO lesions.

**Methods:** From 06/2010 to 11/2013 105 patients (111 lesions) with clinical driven follow-up angiography after PCI with DES received an OCT analysis. Patients with successful CTO-PCI (19 patients/20 lesions, 6.5±2.1 months post-PCI) were included into the CTO-group, patients with non-CTO lesions and total stent length >24mm (28 patients/28 lesions, 4.9±2.2 months post-PCI) were used as control-group.

**Results:** Struts were analyzed by OCT (CTO vs. control, mean±SD): Covered: 68.9±21.9% vs. 89.6±10.4%, p<0.001; uncovered apposed: 20.2±16.2% vs. 7.5±8.7%, p=0.001; uncovered malapposed: 10.9±10.3% vs. 2.9±6.6%, p<0.001. Neointimal thickness was 92.0±16.2μm vs. 109.3±39.2μm, p=0.033. No differences concerning different CTO-PCI approaches were found.

**Conclusions:** A significantly delayed DES coverage after CTO-PCI was observed. Given the known increased rate of ST following CTO-PCI and the known association
between delayed DES coverage and ST, OCT may aid in determining the optimal duration of dual antiplatelet therapy after PCI.

TCT-217

Efficacy And Safety Of Biolimus Eluting Stents With Biodegradable Polymers For The Treatment Of Chronically Occluded Coronary Arteries

Mark Rosenberg1, Simon Gentle1, Matthias Lautz1, Norbert Frey1
1University Medical Center Schleswig-Holstein, Campus Kiel, Kiel, Germany

Background: Due to low success rates, periprocedural complications and higher risk for restenosis the recanlization of chronic total occlusions of coronary arteries (CTO) remain a challenging task in interventional cardiology. Furthermore several studies have revealed that restenosis and late stent thrombosis are linked to the polymer layer of drug eluting stents. We therefore tested whether drug eluting stents with completely biodegradable polymers are applicable for the treatment of CTO’s.

Methods: In order to test this hypothesis we retrospectively examined in a monocentric analysis data of 102 CTO patients who were exclusively treated with biolimus eluting stents with fully biodegradable polymers in the past 24 months. CTO was defined as total occlusion of a coronary artery for more than 3 months and TIMI 0 flow in the occluded segment. Primary study endpoint was late loss at the initial occlusion site after 6 months. Secondary clinical endpoints included a composite of cardiac death, myocardial infarction and target vessel revascularization after 6 months (MACE).

Results: 170 CTO procedures were performed in the past 24 months. 138 CTO’s were successfully reopened which corresponded to a success rate of 81%. The mean occlusion length of 24 ± 14 mm was treated with an average stent length of 68 ± 30 mm. J-CTO score was 1.8 ± 0.9. 102 of the successfully recanalized CTO patients received biolimus eluting stents with biodegradable polymers. Meanwhile 78 patients have concluded angiographic and clinical 6 months follow up. Late loss at the initial occlusion site was 0.26 ± 0.56 mm. Binary restenosis with the need for reintervention occurred only in 5 patients (6.4%). Cardiac death was documented in 1 patient. In addition to that, one patient suffered from a stent thrombosis with a consecutive myocardial infarction during follow up. Therefore the MACE rate was calculated with 9%.

Conclusions: First results of our monocentric analysis indicate that biolimus eluting stents with fully biodegradable polymers are associated with little late loss and low MACE rates in complex CTO lesions. Future studies in larger, independent patient cohorts are necessary to confirm our results.

TCT-218

Clinical benefit of Multi-detector computed tomography for percutaneous coronary intervention in chronic Total Occlusions: TACCTO prospective randomized trial

Beatriz Vaquerizo1, Antonio Barros2, Sandra Pujadas3, Ester Bajo3, DARLENE ESTRADA-YÁNEZ4, Helena Tizón4, Marcelo Jimenez4, Faustino Miranda-Guardiola5, Ruben Leta1, Juan Cinca1, Antonio Serra6
1Medical University of Silesia, Silesian Center for Heart Diseases, Zabrze, Poland, 2Institut Cardiovasculaire Paris Sud, Massy, France, 3ICPS, Massy, France, 4ICPS Massy, Quincy-sous-Senart, France, 5ICPS, Quincy, France

Background: The aim of the present study was to evaluate the effect of chronic total occlusion (CTO) localization in non-left anterior descending artery (LAD) on 12-month mortality in patients with NSTEMI and multivessel coronary artery disease (MV CAD) treated with PCI.

Methods: We analyzed consecutive records of 991 patients with NSTEMI and MV CAD treated with PCI admitted to the Clinic between 2006 and 2011. The inclusion criteria were presence of MV CAD, single CTO in non-LAD and availability of 12-month follow up. Patients with a history or qualified to CABG during current hospitalization were excluded from further analysis. Clinical characteristics, in-hospital and 12-month outcomes of 165 patients were analyzed according to localization of CTO in coronary angiography. Patients were divided into three groups: CTO in left anterior descending artery (CTO LAD n=43), CTO in left circumflex artery (CTO LCx n=47), CTO in right coronary artery (CTO RCA n=75).

Results: In baseline characteristic we observed significant differences in occurrence of diabetes (respectively: 35.5% vs 31.9% vs 25.3%, p<0.007). In-hospital mortality was significantly higher in CTO RCA group (respectively:2.3% vs 0.0% vs 9.3%, p=0.044). The rates of myocardial re-infarction, target vessel revascularization, stroke, major bleeding and average GRACE score during the hospitalization were similar in all analyzed groups. CTO in LAD was associated with increased 12 months mortality in studied groups (respectively: 13.9% vs 4.3% vs 22.7%, p<0.002), post hoc analysis showed significant difference between CTO RCA and CTO LCx groups (P=0.006). In multivariate analysis CTO location in RCA remained independent factor influencing 12 month mortality (HR: 3.82; 95% CI: 1.58-9.20; p<0.003).

Conclusions: In studied population localization of CTO in RCA was associated with worse clinical outcomes and was an independent predictor of 12 month mortality.