Background: Successful CTO treatment is able to increase left ventricular function, exercise capacity and reduction of mortality. Up to date no adequate information on stent strut endothelialisation after CTO treatment is available. In particular, the duration of dual antiplatelet therapy (DAPT) remains an issue of debate. Following CTO treatment, patients are at risk for restenosis as well as stent thrombosis. DAPT is able to sufficient reduce frequency of stent thrombosis, but keeps an increased risk of restenosis. Most probably, unnecessarily prolonged DAPT following PCI and optical coherence tomography (OCT) is a novel invasive method, which is able to precisely analyse stent strut endothelialisation. We tested the hypothesis, that OCT detects delayed endothelialisation after CTO treatment compared to non-CTO PCI.

Methods: We performed diagnostic OCT measurements following successful CTO treatment (n = 22) as well as non-CTO DES PCI of complex lesions (n = 29). All patients had been treated with 2nd generation DES. Mean time point of OCT analysis was 7.8 months and 6.5 months, respectively (p = 0.83).

Results: The two groups were well matched and similar concerning characteristics. Stent struts (in total n = 13629) were analysed and classified by OCT according to previously described methods (CTO recanalization vs. non-CTO DES; mean +/- SEM): covered struts: 81.65 +/- 2.9% vs. 97.34 +/- 0.78%, p < 0.0001; protruding/uncovered struts: 10.1 +/- 1.7% vs. 1.4 +/- 0.5%, p < 0.0001; malpositioned/uncovered struts: 7.9 +/- 2.0% vs. 1.3 +/- 0.5 %, p < 0.001. We performed subgroup analysis concerning CTO recanalization by antegrade vs. retrograde approach as well as subintimal tracking vs. non-subintimal tracking methods. No significant differences were found concerning subgroup analysis. No MACE events were detected in this series.

Conclusions: Here we describe delayed stent endothelialisation after CTO treatment. Our results suggest an urgent need to extend the DAPT after CTO treatment to reduce the risk of late stent thrombosis. OCT allows interventional cardiologists to safely and precisely perform follow-up examinations in patients after CTO recanalization with the ability of individualise the duration of DAPT.

TCT-375
Comparison of Long Term Outcome After First- and Second-Generation Drug-Eluting Stents in the Treatment of Chronic Total Occlusions: Insights From a Large Registry of 1,343 Consecutive Patients
Francesca Sangioutiet1, Yves Louvard1, Stephen O’Connor1, Yusuke Watanabe2, Francesca Sanguineti1, Yves Louvard1, Stephen O’Connor1, Yusuke Watanabe2, Marie-Claude Morice1, Philippe Garot4
1Institut Cardiovasculaire Paris Sud, Générale de Santé, Massy, France, 2Institut Cardiovasculaire Paris Sud, Massy, France, 3Institut Cardiovasculaire Paris Sud. Hôpital Privé Jacques Cartier. Générale de Santé, Massy, Ile-de-France, 4Institut Cardiovasculaire Paris Sud, Générale de Santé, Quincy, France

Background: Second-generation drug-eluting stents (DES) have reduced the occurrence of target vessel revascularization (TVR) and stent thrombosis compared to first-generation DES but the clinical impact in chronic total occlusion (CTO) is poorly described. We aimed to describe delayed stent strut endothelialisation after CTO treatment is available. In particular, the angiographic characteristics between the two groups (calcifications, proximal tortuositites, lesion length) in the use of a torus device and a retrograde approach were associated with higher rates of cardiac tamponade (0.17 vs. 0.02 p = 0.01, and 0.28 vs. 0.02, respectively). Procedural duration was longer in patients in whom a cardiac tamponade occurred (124.2 ± 24 minutes, vs. 92.1 ± 37 minutes, p = 0.01) and success rate was equal (0.77 vs 0.70, p = 0.61, respectively). Importantly, in-hospital stay was longer (7.2±3.6, vs. 3.1±3, p<0.001, respectively), and rate of in-hospital death was higher among patients who have experienced cardiac tamponade compared to those without per and post-procedural tamponade (11% vs. 1%, p=0.01, respectively).

Conclusions: Cardiac tamponade occurred in 1.2% of a broad population of consecutive patients treated by PCI for chronic total coronary occlusion. Absence of visual stump and use of aggressive devices and strategies were more frequently associate.

TCT-377
Myocardial Performance Index After Successful Recanalization of Chronic Total Coronary Occlusions
Gulhan Y. Kalkan1, Oytun A. Baykan1, Zafer Elhasan1, Durmus Y. Sahin1, Tuner Seker1, Mustafa Gur1, Caner Turkoğlu1, Murat Caylı1
1Adana Numune Training and Research Hospital, Adana, Turkey

Background: Percutaneous recanalization of chronic total coronary occlusions (CTO) tends to show a positive effect on LV remodeling and ejection fraction (EF). Nevertheless, its effects on global cardiac functions are yet to be fully understood. Myocardial performance index (MPI) is likely to be more effective for analysis of global cardiac function than systolic and diastolic measurements alone. The aim of this study was to evaluate the effects of recanalization of CTO on global cardiac functions by using MPI.

Methods: We evaluated 25 patients (20 men, mean age 57.5 ± 14.1 years) who had ischemia on myocardial perfusion imaging and underwent successful percutaneous coronary intervention of right coronary artery (RCA) CTO. All patients underwent transthoracic echocardiography before (basal), 24 hours after (early) and at 3 months (late) of successful PCI. The MPI was calculated by using pulse wave tissue Doppler (TD) echocardiography.

Results: There was no difference between basal, early and late left ventricular ejection fraction values (53.1 ± 10.2, 53.3 ± 9.5, 53.3 ± 11.2, respectively). The MPI at basal was significantly increased compared to the basal and early MPI (0.61 ± 0.09 vs. 0.53 ± 0.07; p < 0.001 and 0.60 ± 0.08 vs. 0.53 ± 0.07; p < 0.001, respectively). On the other hand, there was no significant difference between basal and early MPI (0.61 ± 0.09 vs. 0.60 ± 0.08; p = 0.84, respectively). Also, TD MPI within 3 months was significantly increased when compared to others (0.58 ± 0.09 vs. 0.53 ± 0.08; p = 0.003, 0.57 ± 0.07 vs. 0.53 ± 0.8; p < 0.001, respectively for TD MPI septal and 0.59 ± 0.08 vs. 0.51 ± 0.07; p < 0.001, 0.58 ± 0.08 vs. 0.51 ± 0.07; p < 0.001, respectively for TD MPI lateral).

Table 1. MPI values before and after of RCA CTO

<table>
<thead>
<tr>
<th></th>
<th>Basal</th>
<th>Early</th>
<th>Late</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2d MPI</td>
<td>0.61±0.09</td>
<td>0.60±0.08</td>
<td>0.53±0.07</td>
<td>0.04</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TD septal MPI</td>
<td>0.58±0.09</td>
<td>0.57±0.08</td>
<td>0.53±0.08</td>
<td>0.32</td>
<td>0.003</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TD lateral MPI</td>
<td>0.59±0.08</td>
<td>0.58±0.08</td>
<td>0.51±0.07</td>
<td>0.42</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>P1: basal vs. early MPI</td>
<td>P2: basal vs. late MPI</td>
<td>P3: early vs. late MPI</td>
<td>values are mean ± standard deviation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusions: In this study, we have shown that successful recanalization of CTO results in increased MPI-estimated global cardiac functions within 3 months, while the EF values remain unchanged.

TCT-378
Drug eluting stents with bioresorbable polymer – short and long term clinical outcomes in the treatment of CTO lesions
Alexander G. Osei1, Bernard Chevalier1, Thomas Hovasse1, Andres Biguet1, Marie-Claude Morice1, Jawed Polad1, Antonio Serr1
1Academic E.N Meshalkin State Research Institute of circulation Pathology, Novosibirsk, Russian Federation, 2ICFS, Massy, France, 3Complejo Hospitalario Universitario de Vigo, Vigo, Spain, 4Institut Cardiovasculaire Paris Sud, Générale de Santé, Massy, France, 5Jeroen Bosch Ziekenhuis, S.Hertogenbosch, Netherlands, 6Hospital de Sant Pau y Santa Creu, Barcelona, Spain

Background: New generation drug eluting stents (DES) significantly improved short- and long-term vessel patency after CTO recanalization. Data on the performance of

Methods: Between October 2003 and June 2010, a total of 1509 consecutive patients with CTO were treated by PCI defined as the presence of TIMI 0 flow within an occluded arterial segment of greater than 3 months standing. The population characteristics were compared regarding the presence of per and post-procedural tamponade.

Results: A cardiac tamponade occurred in 18/1509 patients (1.2%). As opposed to patients with a tamponade-free procedure, patients who have experienced cardiac tamponade were typically older (68.6±10.34 vs. 63.4±11.29, p = 0.03) and had similar risk factors (diabetes in 27% and dyslipidemia in 64%). Cardiac tamponade occurred more frequently in experienced operators reflecting more complex procedures. Absence of visual stump was associated with higher rate of cardiac tamponade (50% vs. 24.8% for patients without tamponade, p = 0.02). There were no differences regarding other angiographic characteristics between the two groups (calcifications, proximal tortuositites, lesion length) in the use of a torus device and a retrograde approach were associated with higher rates of cardiac tamponade (0.17 vs. 0.02 p = 0.01, and 0.28 vs. 0.02, respectively). Procedural duration was longer in patients in whom a cardiac tamponade occurred (124.2 ± 24 minutes, vs. 92.1 ± 37 minutes, p = 0.01) and success rate was equal (0.77 vs 0.70, p = 0.61, respectively).

Conclusions: Cardiac tamponade occurred in 1.2% of a broad population of consecutive patients treated by PCI for chronic total coronary occlusion. Absence of visual stump and use of aggressive devices and strategies were more frequently associate.