of target vessel occlusion and clinically-driven target lesion revascularization rates (CD-TLR). The purpose was to conduct a meta-analysis of the best available evidence comparing the safety and efficacy of DCB versus standard Percutaneous Transluminal Angioplasty (PTA) in the treatment of IP lesions in patients with CLI.

**METHODS** We conducted a systematic search of the PubMed, EMBASE, and Cochrane databases up to June 2015, and collected data from all the randomized controlled trials (RCT) that compared DCB vs PTA for the treatment of IP disease in patients with CLI. Primary outcome was CD-TLR. Secondary outcomes included major amputations, binary re-stenosis and all-cause mortality. We used fixed or random effect analysis using the Cochrane Handbook of Systematic Reviews.

**RESULTS** Out of 55 articles, 3 RCTs provided a total of 415 patients and 525 lesions (DCB: 243 patients and 319 lesions. PTA: 173 patients and 206 lesions). There was a trend towards less TLR in the DCB compared to PTA (11.5% vs. 21.5%, p = 0.1). There was no difference in amputation-free survival or mortality rates between both groups (Figure 2).

**CONCLUSIONS** Our analysis suggests that DCBs are beneficial and efficacious in the treatment of IP lesions in patients with CLI, however there was no proven benefit in the reduction of amputation-free survival or mortality rates. An in-depth analysis is necessary to determine the origin of the discrepancies between the single center and multicenter RCT’s that conform the patient sample for this study.

**CATEGORIES ENDOVASCULAR:** Peripheral Vascular Disease and Intervention

**KEYWORDS** Drug-eluting balloon, Infrapopliteal

**TCT-803**

**Twelve-month Clinical Outcomes of Peripheral Arterial Disease Patients with or without Critical Limb Ischemia undergoing Percutaneous Transluminal Angioplasty**

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**BACKGROUND** Percutaneous transluminal angioplasty (PTA) is considered as an effective treatment in patients (pts) with critical limb ischemia (CLI). There are very limited data whether the procedural and clinical outcomes of symptomatic peripheral arterial disease (PAD) pts with CLI can be different with those of non-CLI following successful PTA.

**METHODS** This study consisted of 503 consecutive lower extremity arterial disease pts (602 Limbs) enrolled from Sep 2004 to Dec 2013. Among these pts, a total 368 pts (73.1%) presented with CLI (Rutherford Chronic Limb Ischemia Category 4,5,6). All the enrolled pts with CLI (n=368) and without CLI (Rutherford Category 1,2,3, n=135) were treated with PTA. Procedural success, complications and clinical outcomes were compared between the two groups up to 12 months.

**RESULTS** The CLI group presented with active wound in 86.4%, diabetic foot in 55.0% and gangrene in 23.0%, and showed longer stay in hospital than non-CLI group (58 days vs. 11 days, p < 0.001). At baseline, the CLI group had more diabetes, and chronic renal insufficiency, whereas the Non-CLI group had more dyslipidemia, smoking, alcohol, and prior myocardial infarction. Baseline angiographic findings showed that the CLI group had more diffuse long lesion, calcified lesion, and infra-popliteal lesions, whereas the non-CLI group had more ilio-femoral lesions. Procedural complications such as pseudo-aneurysm (0.5% vs 3.7%), and hemorrhagic stroke (0.0% vs. 2.2%) were higher in the non-CLI group, but transfusion episode were more common in the CLI group. Overall angiographic procedural success (residual stenosis < 50%) rate was 94%. At 30 days, there were no differences in clinical outcomes between the two groups. At 12 months, pts with CLI showed less limb salvage (92.5% vs. 97.0%; hazard ratio, 0.128; 95% CI, 0.017 - 0.963, p = 0.019), and higher amputation risk (18.2% vs. 0.6%; hazard ratio, 36.1; 95% C.I, 4.979 - 261.6, p < 0.001) than non-CLI pts (Figure).

**CONCLUSIONS** Development of excellent devices, techniques, and optimal medical therapy, the procedural and clinical outcomes has been improved in PAD pts. However, pts with CLI was associated with higher amputation and less limb salvage despite of successful revascularization than pts without CLI.

**CATEGORIES ENDOVASCULAR:** Peripheral Vascular Disease and Intervention

**KEYWORDS** Critical limb ischemia, Peripheral angiography

**TCT-804**

**CCC (Color Coded Circulation): A novel technique to determine complicated blood flow patterns**

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**BACKGROUND** Conventional DSA (Digital Subtraction Angiography) is a de facto standard for determining blood flow at Angio suite. But it is sometimes difficult, especially for younger physicians, if flow patterns are complicated. Several articles mentioned that parametric color coding (time to peak: TTP) images would help for the determination. However, it is still difficult if vessel flow pass through complicated area in short period. We have recently established an intelligible technique named color coded circulation (CCC) to clearly demonstrate vessel flow patterns.
METHODS The principle of CCC is that determining the arrival time of contrast media by time-density curve obtained from conventional DSA pixel by pixel, followed by converting the arrival time to circulatory color phases. By this technique, blood flow is demonstrated as sequential color imaging. CCC and TTP/DSA images obtained from 19 dural arteriovenous fistulas (dAVFs) were presented to four experienced and 4 less experienced observers in a randomized order. And the observers were then asked the location(s) of the shunt and the venous drainage pattern recognized on each image. The time to detection was also recorded. The comparison between CCC and TTP/DSA were analyzed using chi-square test.

RESULTS Conventional DSA, TTP and one still image extracted from CCC images for one of typical cases were shown in Fig. 1(a), (b) and (c), respectively. CCC was superior to TTP/DSA in accuracy of shunt detection (81.6% vs 54.2%, p < 0.0001), recognition of the venous drainage pattern (94.7% vs 78.3%, p = 0.0001), and the time to detection (22.8 sec. vs 36.4 sec, p = 0.0001). These effects were observed in both experienced and inexperienced physicians.

CONCLUSIONS CCC provided more accurate and comprehensible information of blood flow by sequential, color-coded imaging in a single window compared with combination of static, color-coded TTP images and sequential DSA images. Considering its efficacy for both experienced and younger physicians, CCC would be a very useful tool in educational and therapeutic process of managing dAVFs.

CATEGORIES ENDOVASCULAR: Peripheral Vascular Disease and Intervention

KEYWORDS AV fistula, Decision making, Intervention

TCT-805 Intravascular Ultrasound Utilization And in-Hospital Outcomes In Peripheral Vascular Interventions: Insights From Nationwide Inpatient Sample

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BACKGROUND Although prior studies have demonstrated favorable outcomes with intravascular ultrasound (IVUS) in coronary interventions, there is lack of data on the impact of IVUS utilization in peripheral vascular interventions.

METHODS We queried the HCUP’s Nationwide Inpatient Sample (NIS) between 2006 - 2011 using the ICD-9-CM code for lower extremity peripheral vascular disease and procedural codes 39.90, 00.55 for stenting, 39.50 for angioplasty and 00.23 for IVUS in peripheral vascular intervention. Only infra-inguinal procedures performed in patients > 18 years were included. Hierarchical mixed-effects logistic regression models were generated to evaluate multivariate predictors of outcomes. The primary outcome was in-hospital mortality, Co-primary outcome was amputation, secondary outcome was composite of in-hospital mortality and post-procedural complications.

RESULTS A total of 88,324 infra-inguinal vascular interventions were analyzed (weighted n = 432,718) (45.2% female & 59% whites). IVUS utilization was associated with significantly reduced amputation rates (5.4% vs 10.3%, p < 0.001). Multivariate analysis showed similar primary (OR, 95% CI; p - value) (1.17, 0.74 - 1.86; p = 0.49) and secondary outcomes (1.06, 0.82 - 1.36; p = 0.682) but decreased amputation rate with IVUS utilization (0.56, 0.43 - 0.74, p < 0.001). Propensity score match analysis (1:1 greedy matching) also showed similar results. Subgroup analysis for IVUS utilization also showed similar observations with decreased rate of amputation in most subgroups (Figure). Moreover, emergent admission, higher Charlson score, weekend admission, teaching hospital were associated with higher amputation rate and private insurance and higher hospital volume associated with lower amputation rates.

CONCLUSIONS IVUS utilization results in significantly reduction in amputation rates without any impact on overall in-hospital mortality in peripheral vascular interventions.

CATEGORIES ENDOVASCULAR: Peripheral Vascular Disease and Intervention

KEYWORDS Amputation, IVUS

TCT-806 Slow and Prolonged Inflations in Percutaneous Transluminal Angioplasty is as Effective as Stenting in Peripheral Vascular Interventions

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BACKGROUND The benefit of stent implantation over percutaneous transluminal angioplasty (PTA) in patients undergoing peripheral vascular interventions (PVI) has not been well described. Original data supporting stents over PTA was in an era without routine atherectomy, and more recent data including chronic total occlusions (CTO) and longer lengths demonstrated no difference.

METHODS 551 patients undergoing PVI were identified from January 2011 to January 2015. Success was defined by a composite improvement of ankle brachial index (ABI) to over 0.9, an ultrasound velocity of less than 250 m/s, or Rutherford classification improvement. All PTA was performed over a slow inflation over 5 minutes. A Pearson chi-square and multivariate analyses were used to determine results.

RESULTS 274 (49.72%) patients received PTA alone and 277 (50.28%) received stents. Although more patients with diabetes and longer lesion length were in the PTA group, stenting did not improve the individual or composite success endpoints. Even when correcting for these differences in a multivariate analysis.