angioplasty: dizziness (110), bilateral weakness (12), visual changes (14), diplopia (12), drop attacks (24), TIA (15), ataxia (6). A protection device (filter) used in 12 pts. 25 SA angioplasties performed at the same time of VAS, 10 CA. All angioplasties performed by femoral approach, 4 by brachial approaches after failure of femoral approach. (2 successes).

Results: Technical success 118/120 (99%). 6 lesions treated by angioplasty alone: 3 VO (first 3 pts. 2 V1, 1 V2 lesion). 1 pt (inflammatory disease) treated by cutting balloon alone. 111 lesions treated with stents (direct stenting: 96%). Peripheral balloon expandable stents (n=23), self expandable stents (n=4 for 3 V1 and one V2 lesions). 88 coronary stents (20 DES), 1 pt developed a TIA during the procedure. No neurological complications at 30 days Clinical success 112/114 (99%) Post-procedure arterial diameter: 4.60 ± 0.8 mm (4-6). Mean residual stenosis 2.5 ± 3.9 %. In 12 pts treated with protection devices, visible debris removed in 9 (6 Filterwire, 2 Fiberint 1 Angioguard with the same amount of debris as during Carotid Stenting) 9 pts (8%) developed a symptomatic restenosis during the follow-up (mean: 33.4 ±29.9 months), 3 after PTA alone, 5 after PTA and stent (1 occlusion treated medically, 7 stenoses successfully treated with PTA). No restenosis after DES implantation at 1 year.

Conclusions: VAS can be performed safely and effectively with a high technical success rate, a low complication rate, a low restenosis rate and a durable clinical success in patients with symptomatic VA stenosis. Stents seem to improve immediate and long-term results. The role of protection devices and D.E.S has to be discussed.

TCT-548
Proximal occlusion versus distal filter for cerebral protection during carotid stenting: a meta-analysis of MRI studies
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Background: Proximal occlusion (PO) and distal filter (DF) serve for cerebral embolic protection during carotid artery stenting (CAS). The incidence of new cerebral lesions at diffusion-weighted magnetic resonance imaging (DW-MRI) represents a surrogate endpoint for embolization, though the clinical impact is controversial. We perform a meta-analysis of DW-MRI studies comparing PO and DF during CAS.

Methods: Scientific databases and websites were searched. The primary endpoint was the incidence of new cerebral lesions at DW-MRI; secondary endpoints were the incidence of new ipsilateral and new contralateral cerebral lesions at DW-MRI and death/embrovacular events (CVE).

Results: A total of 292 patients from 6 studies received CAS with PO (n=143) or DF (n=149). At DW-MRI after 48 hours 129 patients (49%) presented new cerebral lesions. PO versus DF did not reduce the risk of new cerebral lesions (OR [95% confidence interval] 0.74 [0.26-2.07], P= 0.57), neither ipsilateral (0.72 [0.24-2.16], P=0.55), nor contralateral (0.55 [0.26-2.00], P= 0.13). At 90-day follow-up, PO versus DF did not reduce the risk of death/CVE (0.58 [0.18-1.90], P=0.37). High-grade baseline stenoses and the presence of symptoms significantly modified the risk estimates for new cerebral lesions. However, there was no relationship between new cerebral lesions and the risk of death/CVE.

Conclusions: In this meta-analysis, one half of patients receiving protected CAS developed new embolic cerebral lesions at DW-MRI, although the overwhelming majority was asymptomatic. Cerebral protection with PO versus DF did neither reduce cerebral embolization nor improve clinical outcomes. The grade of baseline stenosis and the presence of symptoms impact the risk of cerebral embolization associated with protected CAS.

TCT-549
Could Staged Carotid Stenting with CABG be non-inferior to combined Carotid Endarterectomy and CABG for Carotid and Coronary Revascularization?
A Meta-Analysis of Prospective Studies
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Background: Carotid stenting (CS) is considered to be non-inferior to carotid endarterectomy (CEA) for treatment of symptomatic carotid disease with similar stroke and death rates. It is still to be determined if staged CS followed by CABG could be also non-inferior to combined CEA and CABG for the concomitant presence of coronary and carotid artery disease. Therefore we aimed to evaluate the non-inferiority of staged CS compared to combined CEA and CABG by using all the prospective available studies.

Methods: Pub Med, Chocrane and Scopus were systematically searched up to April 2014. Subjects of analysis were 30 days post surgery incidence of stroke and death for carotid and coronary revascularization using either CS or CEA with CABG. We used Fixed or Random Effect analysis using the Cochrane Handbook of Systematic Reviews.

Results: Out of 350 articles, three prospective studies were identified and disclosed a total of 94 patients on the CS and 140 in the CEA group respectively. There was a trend towards lower stroke in the CAS group compared to the CEA (4.2% vs 9.2%, p=0.1; Figure 1A) and no difference on mortality rate (5.3% vs. 7.8%, p=0.42; Figure 1B).

Conclusions: Our analysis suggests that staged CS and CABG might not be inferior to combined CEA and CABG. Also the overall mean incidence of 30 days stroke is below the average reported on most observational studies. Therefore clinical randomized studies are warranted.

TCT-550
Relationship Between Circulating Biomarkers of Atherosclerosis, Fibrin Clot Properties and Carotid Plaque Key Components Quantified in vivo Using a Novel Virtual Histology Image Analysis Algorithm
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Background: Circulating biomarkers of atherosclerosis, in isolation, are largely ineffective in risk stratification of carotid plaque (CS) symptomatic transformation while plaque morphology is increasingly implicated. Intravascular ultrasound (IVUS, 20MHz transducer) provides axial resolution ≤0.12mm. However, conventional (p)hotogetic− virtual histology (VH-IVUS) plaque evaluation has poor between-center/−observer reproducibility. To provide basis for prospective comprehensive evaluation, we sought to determine whether quantitative measures of key rupture-risk plaque components are related to selected circulating biomarkers.

Methods: We developed an algorithm for fully-quantitative VH-IVUS analysis of key plaque components known for their role in plaque rupture/thrombosis. Inter-transducer and inter-observer reproducibility of qVH-IVUS analysis including minimal fibrous cap (FC) thickness, and peak confluent NC area, thickness and arc. Next we employed the qVH-IVUS algorithm to evaluate CS lesions in 200 consecutive patients (age 47-83, 63.4% men, lso-CS-attributable symptoms in 50.3%) presenting for potential CS revascularization and determined the levels of a panel of biomarkers.

Results: qVH-IVUS revealed significant differences in minimal FC thickness (0.41±0.04 v 0.34±0.05 v 0.16±0.02 v 0.19±0.03mm), peak confl NC area (3.0±0.2 v 2.5±0.3 v 4.4±0.4 v 3.4±0.5mm²), arc (87.1±6 v 67.2±6 v 121.6±9 v 94.0±9deg) and thickness (0.88±0.04 v 1.07±0.07 v 1.34±0.06 v 1.16±0.11mm); asymp CS in absence of contractal symptoms, asymp CS+contractal symptoms, recently symptomatic and remotely symptomatic CS, p< 0.001 all. hsCRP was not correlated with min FC (p=0.74) or NC area (p=0.48). TEMP correlated with min FC (r=0.34, p=0.001). Modest though highly significant correlations were identified between Lp-PLA2 and confl NC area (r=0.3, p=0.0001), HDL and confl NC thckn (r=0.21, p=0.002). Selected fibrin clot properties showed an association with VH-determined plaque content. Fibrogen level correlated with % plaque fibrotic content (r=0.19, p=0.008).

Conclusions: These findings provide novel insights into circulating biomarker/quantitative plaque morphology associations that may be relevant to risk stratification.