

POSTERS

ACUTE CORONARY SYNDROMES

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TCT-100

Asians suffer the highest in-hospital mortality rates after acute coronary syndrome despite high use of early invasive procedures

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BACKGROUND Guidelines prescribe universal recommendations for the early invasive treatment of acute coronary syndrome (ACS). However, differential outcomes of ACS by race in the modern era of drug-eluting stents (DES) are not well understood.

METHODS We analyzed 835,070 hospitalizations for ACS from the Healthcare Cost and Utilization Project across all insurance types from 2008-2011, examining whether quality of care and outcomes for patients with ACS differed by race (White, Black, Hispanic, Asian, Native American, Other) with adjustment for patient characteristics and clustering by hospital.

RESULTS We found that black patients were less likely to present with a ST-elevation myocardial infarction (STEMI) compared to other races (23.1% versus 29.1-32.5% for other races, $p < 0.0001$), with Asians and Whites most likely to present with a STEMI. Black patients were also less likely to receive an angiogram within 24 hours of a STEMI (67.6% versus 68.8%-72.2% for other races, $p < 0.0001$) or within 48 hours of a Non-STEMI (44.4% versus 48.7%-50.9% for other races, $p < 0.0001$). Black race was associated with lower use of a DES (29.8% versus 37.8%-39.8% for other races, $p < 0.0001$) and lower use of coronary artery bypass surgery (5.3% versus 8.6%-9.5%, $p < 0.0001$). However, black patients had lower mortality rates (5.2% versus 5.7-7.3% for other races, $p < 0.0001$), despite higher comorbidities. Asian patients had the highest mortality rates (7.31% versus 5.2%-6.7% for other races, $p < 0.0001$), despite rapid times to percutaneous coronary intervention in STEMI (68.8% received angiogram within 24h of STEMI) and NSTEMI (49.5% received angiogram within 24h of STEMI), and the highest use of DES (73.7% versus 63.3%-68.0% for other races, $p < 0.0001$).

CONCLUSION Asian patients appeared to have the worst mortality outcomes after ACS, despite high use of early invasive treatments. Black patients have better outcomes despite receiving less guideline-driven treatment for ACS. Further studies, including disaggregation, will be required to discern what factors explain the poor outcomes observed for Asians and to minimize inequities in the invasive treatment of ACS.

CATEGORIES OTHER: Quality, Guidelines and Appropriateness Criteria

TCT-101

Predictors for Recurrent Dissection after Spontaneous Coronary Artery Dissection

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BACKGROUND Spontaneous coronary artery dissection (SCAD) is an important cause of myocardial infarction (MI) in young women. Recurrent SCAD after the first SCAD presentation is frequent and accounts for the majority of recurrent MI events on follow-up. However, the predictors of recurrent SCAD have not been explored.

METHODS Vancouver General Hospital is the quaternary referral center for SCAD patients throughout British Columbia and surrounding provinces. In this study, we included patients with recurrent SCAD from our prospectively followed consecutive cohort of non-atherosclerotic SCAD patients enrolled in our SCAD registries. Baseline demographics, angiographic characteristics, predisposing/precipitating factors, and cardiovascular events were recorded. Predictors of recurrent SCAD (extension of dissections or new dissections) were explored in univariate and multivariate analyses, including age, sex, hypertension, emotional stress, physical stressor, fibromuscular dysplasia (FMD), connective tissue disease (CTD), systemic inflammatory disease (SID), active hormonal therapy, left ventricular (LV) function, and multi-vessel SCAD.

RESULTS We prospectively followed 280 patients at our SCAD clinic. Average age was 52.4 ± 9.4 yrs and majority were women (90.0%). All presented with MI, 23.9% with STEMI and 76.1% with NSTEMI. Patients had low cardiovascular risk factors overall, but 36.4% had hypertension, 50.7% reported emotional stress, and 28.2% reported physical stressor. FMD was present in 63.6% (19.6% incomplete or not screened), CTD in 3.2% and SID in 9.6%. Mean LV function was $55.9 \pm 9.6\%$, and 12.1% had multi-vessel SCAD. At median follow-up of 2.6 yrs (95% CI 2.4-3.0), mortality was 1.4%, recurrent MI 19.3%, recurrent SCAD 12.5%, and stroke/TIA 1.4%. Of the 35 recurrent SCAD cases, all presented with repeat MI. In our univariate and multivariable analyses, only hypertension was a predictor of recurrent SCAD (HR 2.2, 95% CI 1.1-4.3, $p = 0.028$).

CONCLUSION In our large prospectively followed cohort of SCAD patients, hypertension was the only independent predictor of recurrent SCAD. Future studies should explore this relationship further and the management implications.

CATEGORIES CORONARY: Acute Myocardial Infarction

TCT-102

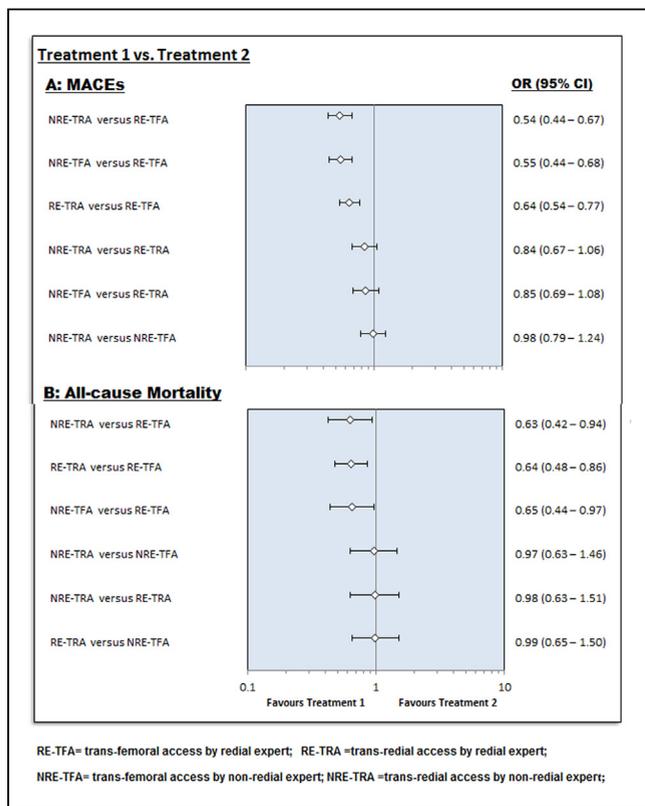
Association Between Operator Experience with Access Type in Percutaneous Coronary Intervention and Outcomes in Patients with Acute Coronary Syndrome: A Network Meta-Analysis of Randomized Controlled Trials

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BACKGROUND Several recent meta-analyses of randomized controlled trials (RCTs) demonstrate that trans-radial access (TRA) decreases mortality and MACE rates in patients with acute coronary syndrome (ACS) undergoing PCI. In those RCTs, however, the MACE and mortality rates were unexpectedly high when trans-femoral access (TFA) was used by radial experts (REs), leading to concern that the significant difference favoring TRA could have been a result of an increased incidence of adverse events in the TFA arms. Therefore, we performed a network meta-analysis comparing adverse events across four groups (TFA and TRA by both REs and non-radial experts [NREs]).

METHODS Relevant RCTs were included in a Bayesian network meta-analysis using mixed treatment comparison models to compare outcomes across the four groups.

RESULTS We included data from 13 RCTs involving 12,735 patients. Mortality and MACE rates were decreased in TRA if either operator (REs or NREs) was compared with TFA by REs only, not by NREs (figure). Furthermore, TFA by NREs was associated with decreased MACE and mortality rates compared with TFA by REs (Figure).



CONCLUSION In ACS patients undergoing PCI, TRA irrespective of operator experience is associated with decrease MACE rate and improved survival only when compared with TFA by REs, not by NREs. This suggests that MACE and survival benefits of TRA in these RCTs and meta-analyses may be influenced by an increased incidence of adverse events in the TFA arms, rather than a beneficial effect of TRA. This issue needs further investigation before making significant changes to American guidelines.

CATEGORIES CORONARY: Acute Coronary Syndromes

TCT-103
Angiographic Healing of Spontaneous Coronary Artery Dissection



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BACKGROUND Spontaneous coronary artery dissection (SCAD) is an important but often missed etiology for myocardial infarction (MI). Angiographic healing of SCAD affected arteries is typically observed, but little is known about the characteristics and time-interval for healing.

METHODS Patients with non-atherosclerotic SCAD prospectively followed at Vancouver General Hospital and enrolled in our SCAD registries were reviewed; those who had repeat coronary angiograms were included in this study. Baseline characteristics, index and follow-up coronary angiography were qualitatively assessed for 2 experienced angiographers for SCAD angiographic classification, TIMI-flow, stenosis severity, and left ventricular function. Follow-up angiography was examined for healing, defined as a triad of residual stenosis <50%, improvement of stenosis severity from baseline, and improvement or normalization of TIMI-flow. Patients who underwent percutaneous coronary intervention (PCI) of the dissected artery were excluded.

RESULTS There were 146 patients with repeat angiography; 25 had PCI and were excluded. A total of 121 patients with 131 non-contiguous lesions were included in this analysis. The mean age was 51.7 ± 7.5 years, 88.4% were women, and 81.0% Caucasian. All presented with MI. At index angiogram, type 2 angiographic SCAD was most common 97/131 (74.1%), followed by type 1 (19.8%) and 3 (6.1%). LAD was most frequently affected 64/131 (48.9%). TIMI-0 flow was observed in 45/131 (34.4%), and the median segment stenosis was 90%, (IQR 80-100). The median time-interval to follow-up angiography was 5.1 months (IQR 2.3-16.6). On follow-up angiography, the median segment stenosis improved to 10% (IQR 0-20). Overall, healing was observed in 116/131 lesions (88.5%). Importantly, healing was observed in all lesions (n=113; 91.2% ≤30% stenosis) where angiography was repeated after 5 weeks of index event. Of the 15 unhealed segments, all angiograms were performed <35 days after event (7 for recurrent MI, 4 recurrent symptoms, 2 to confirm diagnosis).

CONCLUSION Majority of SCAD arteries heal spontaneously, with healing typically observed after 5 weeks from index event on repeat angiography.

CATEGORIES CORONARY: Acute Coronary Syndromes

TCT-104
Relative Efficacy and Safety of oral P2Y12 inhibitors in Acute coronary syndrome: An Updated Network Meta-Analysis of Randomized Trials



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BACKGROUND A Class 1 indication for patients with acute coronary syndrome (ACS) is dual antiplatelet inhibitors therapy (DAPT) including aspirin and a P2Y12 inhibitor. Randomized controlled trials (RCTs) have shown prasugrel and ticagrelor are superior to clopidogrel, but no RCT has directly compared these three currently approved oral P2Y12 inhibitors for safety and efficacy.

METHODS Relevant RCTs were included in a Bayesian network meta-analysis using mixed treatment comparison models to compare efficacy and safety.

RESULTS We included data from 8 RCTs involving 105,487 patients. Both ticagrelor and prasugrel decreased MACE and recurrent MI rates compared with clopidogrel, and there was no difference between the two. In addition, both decreased the stent thrombosis rate compared with clopidogrel, prasugrel being the more effective of the two. Ticagrelor use was also associated with improved all-cause mortality compared with clopidogrel; no difference was found between prasugrel and clopidogrel. Prasugrel use was associated with significantly increased risk for major bleeding compared with clopidogrel, but compared with ticagrelor, only a non-significant trend toward increased risk was seen. In treatment ranking, ticagrelor was the most efficacious, and prasugrel was the least safe.