

TCT-685

Thermal heterogeneity of carotid arteries as a novel biomarker in patients undergoing coronary angiography

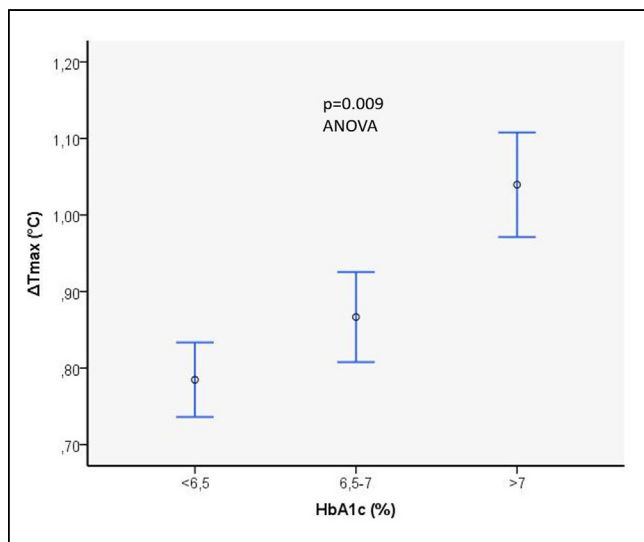


George Tzani,¹ Maria Bonou,² Giorgos Benetos,³ Smaragda Biliou,⁴ Stavros Liatis,⁵ Glafkos Kelepeshis,⁶ Elias Sanidas,⁷ George Anastasiadis,⁸ Konstantinos Toutouzas,⁹ John Barbetseas²
¹Dept. of Cardiology, Laiko General Hospital, Athens, Greece, Athens, Greece; ²Dept. of Cardiology, Laiko General Hospital, Athens, Greece; ³First Department of Cardiology, Hippokraton Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece; ⁴Cardiology Department, Laiko General Hospital, Athens, Greece; ⁵First Department of Propaedeutic Internal Medicine, Diabetes Center, Athens, Greece; ⁶Cardiology Department, Laiko General Hospital, Athens, Greece; ⁷Dept. of Cardiology, Laiko General Hospital, Athens, Greece; ⁸Department of Cardiology, Laiko General Hospital, Athens, Greece; ⁹Athens Medical School, Athens, Greece

BACKGROUND The role of vulnerable plaque inflammation seems to play a crucial role in coronary artery disease (CAD). Microwave radiometry (MWR) is a new, non-invasive, method allowing measurement of the temperature of tissues (reflecting inflammation) that designates vulnerable plaque by assessing thermal heterogeneity. Aim of this study was to evaluate the relation of carotid artery inflammation with glycemic control and with the diagnosis of CAD.

METHODS This prospective study included, with a 2:1 ratio, 69 patients (43 males, 66±9 yrs, 29±4 kg/m²) with diabetes mellitus (DM) and 31 patients without DM (20 males, 63±10 yrs, 30±5 Kg/m²) that were referred for diagnostic evaluation with coronary angiography (CA). All patients were evaluated for the temperature difference (ΔT) along each carotid artery with MWR, and the maximum temperature difference between the 2 carotid arteries (ΔTmax).

RESULTS Patients with DM presented higher ΔTmax comparing to patients without DM (0.90±0.30 vs 0.74±0.26 °C, p<0.01) and glycaemia over time in patients with DM was associated with the thermal heterogeneity of carotids (Figure 1, Bars are mean±SE). Patients with CAD presented higher ΔTmax comparing to patients with normal CA (0.92±0.24 vs 0.70±0.26 °C, p<0.001), while patients that finally underwent coronary revascularization presented higher ΔTmax (0.94±0.25 vs 0.78±0.27 °C, p<0.005). Patients with 3-vessel disease had also higher ΔTmax (1.02±0.25 vs 0.85±0.22 °C, p=0.012), comparing to patients with 1-2 vessel disease. A ΔTmax>=0.9 (obtained by ROC curve analysis) was an independent predictor for revascularization, for all patients, when adjusted for sex, age and the established risk factors of CAD (odds ratio, 5.04; 95% confidence interval, 1.83-13.90; p=0.002).



CONCLUSION Local inflammatory activation of carotid arteries is higher in patients with DM and is associated with the glycemic control. Carotids' thermal heterogeneity is associated with the diagnosis of CAD and need for revascularization supporting its predictive value in CAD.

CATEGORIES IMAGING: Vulnerable Plaque

CORONARY POSTERS TUESDAY

Abstract nos: 699-719, 721-724, 726, 727, 729-749, 751-754, 756-758

TCT-699

Percutaneous Intervention for Concurrent Chronic Total Occlusions in Patients with ST-Elevation Myocardial Infarction: A systematic Review and Meta-analysis.



Pedro Villablanca,¹ Wilman Olmedo,² Michael Weinreich,³ Divyanshu Mohananey,⁴ Tanush Gupta,⁵ Cristina Sanina,² Muhammad Farooq,⁶ Emily Ong,⁶ Thomas Brevik,⁷ Diego Castellon,⁸ Harish Ramakrishna,⁹ Mario Garcia,² Robert Pyo,⁶ Mark Menegus,¹⁰ Anna Bortnick,³ Jose Wiley²

¹New York University, New York, New York, United States; ²Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, New York, United States; ³Montefiore Medical Center, Bronx, New York, United States; ⁴Cleveland Clinic, Cleveland, Ohio, United States; ⁵Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, New York, United States; ⁶Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, New York, United States; ⁷Montefiore Medical Center / Albert Einstein College of Medicine, Bronx, New York, United States; ⁸Medical University of the Americas, Devens, Massachusetts, United States; ⁹Mayo Clinic, Phoenix, Arizona, United States; ¹⁰montefiore, bronx, New York, United States

BACKGROUND Studies have shown that the presence of concurrent chronic total occlusion (CTO) in a non-infarct related artery (nIRA) in ST-elevation myocardial infarction (STEMI) patients is associated with increased mortality. Despite this, it remains unclear if revascularization of a nIRA CTO in STEMI translates to improved outcomes. We performed a meta-analysis to compare outcomes between patients presenting with STEMI with concurrent CTO who underwent percutaneous coronary intervention (PCI) of nIRA CTO vs. those who did not.

METHODS We conducted an electronic database search of all published data. The primary endpoint was major adverse cardiovascular events (MACE) defined as a composite of all-cause mortality, stroke, myocardial infarction (MI), and repeat revascularization (RRV). Secondary endpoints were all-cause mortality, cardiovascular (CV) mortality, MI, RRV either with PCI or Coronary Artery Bypass Grafting (CABG), stroke, and heart failure readmission. Odds ratios (OR) and 95% confidence intervals (CI) were computed using the Mantel-Haenszel method. A fixed-effect model was used; if heterogeneity was (I²)>25, effects were obtained using a random effects model.

RESULTS Five studies (n=876 patients) were included in the analysis. There was a statistically significant difference in heart failure readmissions favoring those receiving nIRA CTO PCI as compared to those who did not (OR 0.53, 95% CI 0.29-0.95). No statistically significant differences were observed between two groups for MACE (OR 0.79, 95% CI 0.32-1.96), all-cause mortality (OR 0.57, 95% CI 0.23-1.39), CV mortality (OR 0.54, 95% CI 0.21-1.34), MI (OR 0.92, 95% CI 0.46-1.84), RRV (OR 1.27, 95% CI 0.57-2.83), or strokes (OR 0.49, 95% CI 0.19-1.25).

CONCLUSION In this meta-analysis, CTO PCI of the nIRA CTO in patients presenting with STEMI was associated with a significant reduction in HF readmissions, but not with MACE, mortality, stroke, MI, or RRV among patients who underwent CTO PCI. Additional studies are needed to fully understand the role of CTO revascularization in STEMI patients.

CATEGORIES CORONARY: Acute Coronary Syndromes

TCT-700

Comparison of the Predictive Performance of Dilemma and P20DAC2 Scoring Systems to Determine the Significance of LAD Intermediate Lesions



Arzu Kalayci,¹ Ecem Akdogan,² Can Karabay,³ Ibrahim Tanboga,⁴ Abdurrahman Naser,² Ozkan Candan,¹ Cetin Gecmen,⁵ Ender Ozgun Cakmak,² Muslum Sahin,² Ibrahim Akin Izgi,⁶ Mehmet Muhsin Turkmen,⁷ Cevat Kirma⁸

¹Kosuyolu Heart and Research Hospital, Istanbul, Turkey; ²Kosuyolu Heart Hospital, Istanbul, Turkey; ³Dr. Siyami Ersek EAH, Istanbul, Turkey; ⁴univ, erzurum, Turkey; ⁵koşuyolu, istanbul, Turkey; ⁶Kosuyolu Yuksek Ihtisas Hastanesi, Kartal, Turkey; ⁷Kartal Kosuyolu