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Scientific Formal (Paper) Presentations

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SESSION: S5J05

Cardiovascular Risk Associated with Non-obstructive Coronary Artery Disease on CCTA Stratified by Sex Among Stable Individuals: Results from an International Multicenter Study of 18,158 Patients

Date/Times

- **DATE: Tuesday**
- **TIME: 3:40 -3:50 PM**
- **LOCATION: S504AB**

PARTICIPANTS

- Jonathan A Leipsic MD - Speakers Bureau, General Electric Company Speakers Bureau, Edwards Lifesciences Corporation Medical Advisory Board, General Electric Company Medical Advisory Board, Edwards Lifesciences Corporation Research Grant, Heartflow, Inc.
- Gilat Grunau PhD - Nothing to disclose.
- Carolyn Taylor MD - Nothing to disclose.
- Cameron J Hague MD - Nothing to disclose.
- Leslee Shaw PhD - Grant, Bracco Group Grant, Astellas Group.
- James Min MD - Medical Advisory Board, General Electric Company Research support, General Electric Company Speakers Bureau, General Electric Company Medical Advisory Board, Arineta Ltd Research support, Koninklijke Philips Electronics NV Research support, Toshiba Corporation Medical Advisory Board, AstraZeneca PLC Medical Advisory Board, Bristol-Myers Squibb Company Consultant, HeartFlow, Inc Stockholder, TC3 Health, Inc Stockholder, MDDX Medical Solutions.
- Gudrun Feuchtnner MD - Advisory Board, Covidien AG Research Consultant, Medtronic, Inc.
- Ricardo C Cury MD - Research Grant, Astellas Group Research Consultant, Astellas Group Research Grant, General Electric Company.
- Matthew J Budoff MD - Grant, General Electric Company.
- Stephan Achenbach MD - Speakers Bureau, Siemens AG Consultant, SERVIER Research Grant, Siemens AG Research Grant, Bayer AG.

SUBSPECIALTY CONTENT

- Cardiac Radiology

PURPOSE

Coronary artery disease (CAD) detected by coronary computed tomographic angiography (CCTA) has been shown to predict death and major adverse cardiac events (MACE) in men and women. To date, potential difference in gender-based prognostic utility of non-obstructive CAD identified on CCTA for myocardial infarction and death has not been adequately examined.

METHOD AND MATERIALS

From an international multicenter observational cohort study of 27,725 individuals consecutively undergoing CCTA from 12 centers, we identified 18,158 patients without known CAD with normal CCTA or non-obstructive disease (defined as <50% diameter stenosis). Non-obstructive CAD presence and extent (segment involvement score) was related to incident MACE—inclusive of death, and myocardial infarction — using multivariable Cox proportional hazards models in addition propensity matching for cardiac risk factors and SIS was performed.

RESULTS

At a 2.3 + 1.1-year follow-up, MACE occurred in 251 patients (0.6% annual event rate). Women were more likely to be dyslipidemic, hypertensive, diabetic and have a family history of CAD ($p < 0.001$ for all), while men were more likely to have higher Framingham risk score ($p < 0.001$) In multivariable analysis, non-obstructive CAD was associated with a hazard ratio [HR] of 1.83 (95% confidence interval: 1.1-3.0, $p = 0.02$) in men and an HR of 1.84 (1.1-3.0, $p = 0.02$) in women for MACE. After propensity matching for risk factors and segment involvement score, non-obstructive disease conferred the same risk for men and women for both MI ($p = 0.89$) and death/MI ($p = 0.90$). Kaplan-Meier MACE-free survival estimates for risk factors, symptoms, and number of coronary segments with non-obstructive CAD were similar between men and women ($p = 0.94$). The absence of CAD was associated with similar lowannualized rate of events (Men 0.3% and women 0.4%, respectively; $p = 0.20$). When propensity matched non-obstructive disease is also associated with a similar event rate between men and women (Men 0.8% vs Women 0.9% $p = 0.89$).

CONCLUSION

Non-obstructive CAD on CCTA confers similar risk of death and myocardial infarction in men and women when matched for underlying cardiovascular risk. The absence of plaque is associated with a similarly low event rate in men and women.

CLINICAL RELEVANCE/APPLICATION

Our data confirms similar risk of non-obstructive CAD on CCTA between men and women helping to better understand CAD related sex differences.