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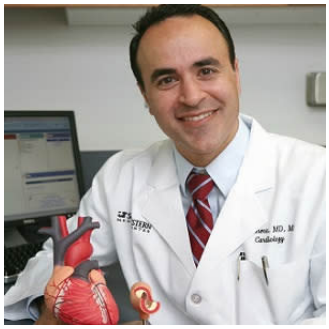
# Online tool improves heart attack, stroke risk prediction



New research sponsored by the U.S. National Aeronautics and Space Administration is beneficial to both astronauts and the general population on Earth. NASA launched the study with UT Southwestern Medical Center to enhance cardiovascular risk prediction for astronauts. The result: a new online prediction tool that integrates traditional risk factors and coronary artery calcium (CAC).

The new tool, named the Astronaut Cardiovascular Health and Risk Modification (Astro-CHARM) calculator, is designed to more accurately predict who among those ages 40-65 is at the highest risk of suffering a heart attack or stroke in the next 10 years. It was developed by the National Space Biomedical Research Institute (NSBRI) together with a research team led by UT Southwestern preventive cardiologist Dr. Amit Khera. Its purpose is to facilitate precise cardiovascular (CV) risk assessment for astronauts – who are predominantly middle-aged men and women – as well as the general population.

Measuring coronary artery calcium is among the most powerful and novel CV risk assessment tests. Until now, patients could not easily combine this measurement with traditional risk factors like blood pressure and cholesterol to predict the risk of having a stroke or heart attack. The Astro-CHARM tool is the first integrated CV risk calculator and could be useful in risk-based decision making for CV disease prevention in the middle-aged general population.

"We found that the Astro-CHARM tool significantly improves cardiovascular risk prediction. It will be an important step forward in decision-making for preventive treatments in the general population for people in midlife," said first author Dr. Khera, Professor of Internal Medicine and Director of UT Southwestern's Preventive Cardiology Programme, who holds the Dallas Heart Ball Chair in Hypertension and Heart Disease. "Cardiovascular risk assessment can also be critical in younger populations, particularly those in high-risk occupations."

For this study, the following risk factors were self-reported: race/ethnicity, history of CV diseases, medication and smoking status. Height, weight, blood pressure, plasma lipids, body mass index (BMI), and glucose were measured using standard methods. The researchers also looked at the patients' personal and/or family history of diabetes and myocardial infarction.

The mean age of the 7,382 study participants was 51, and the group was 45 percent female and 55 percent nonwhite. Data for this study were pooled from the Multi-Ethnic Study of Atherosclerosis, the Dallas Heart Study, and the Prospective Army Coronary Calcium Project. It was independently validated with the Framingham Heart Study Offspring and Third Generation cohorts.

The full study on Astro-CHARM is published in the journal Circulation. The Astro-CHARM cardiovascular disease prevention tool can be found at astrocharm.org.

Source: UT Southwestern Medical Center
Image Credit: UT Southwestern Medical Center

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