Coronary CT angiography detects links between arterial plaque, diabetes, blood pressure, and cholesterol levels.

Coronary computed tomography angiography (CCTA) links cholesterol level, systolic blood pressure, and diabetes to noncalcified arterial plaque in asymptomatic individuals, according to an article published in *Radiology*.

Researchers from the National Institutes of Health Clinical Center and Johns Hopkins University in Bethesda, MD, performed a prospective study using CCTA to assess the relationship between total, calcified, and noncalcified coronary plaque burdens throughout the entire coronary vasculature among asymptomatic individuals who were at low-to-moderate risk.

“Most information to date about coronary artery disease and cardiovascular risk factors in asymptomatic individuals has been derived from calcium scoring,” lead author, David A. Bluemke, MD, PhD, said in a release. “We hypothesized that risk factors for the presence of non-calcified plaque may differ from those for calcified plaque.”

A total of 202 asymptomatic subjects (64% male) over 55 years old (mean age 65.5) participated in the study. The median coronary artery calcium (CAC) score was 73. All subjects underwent CCTA with a 320-detector row CT scanner and an intravenous contrast agent. Coronary wall thickness/plaque was evaluated, and analysis was performed to determine the relationship between risk factors and plaque.

The findings showed that the total coronary plaque index was higher in men (mean 42.06 mm$^2$) than in women (mean 34.33 mm$^2$). Total plaque index remained higher in men than in women (by 5.01 mm$^2$) and in those with higher simvastatin doses (by 0.44 mm$^2$/10 mg simvastatin dose equivalent). In addition, noncalcified plaque index was positively correlated with systolic blood pressure (b = 0.80 mmHg), diabetes (b = 4.47 mm$^2$), and LDL cholesterol level (b = 0.04 mm$^2$/mg/dL). The association with LDL cholesterol level remained significant after additional adjustment for the CAC score.

“These results highlight the potential of CCTA in quantifying plaque burden to assess progression or regression of coronary artery disease in low- to moderate-risk individuals,” Bluemke concluded.