

Survival Benefit of CT Angiography Shown

BY MITCHEL L. ZOLER

ORLANDO — Patients who had their coronary calcium levels imaged by CT angiography had substantially better survival than did similar patients who underwent standard management, an observational study has shown.

The findings, which involved more than 4,000 patients followed for more than 6 years, could have implications for insurance reimbursement of CT angiography, Dr. Matthew J. Budoff said at the annual scientific sessions of the American Heart Association. He hypothesized that the mortality difference between patients who underwent CT imaging and those who did not may be explained by improved compliance with therapy among patients who were able to see the extent of their calcified coronary disease.

Although several payers including United Healthcare, Aetna, Medicare, and Medicaid currently reimburse for CT angiography, the national policy of Blue Cross/Blue Shield is not to cover these examinations. The Blues' stated policy is that they will not cover new diagnostic tests until their value in improving patient outcomes is proved, Dr. Budoff said. He believes the new data mean this standard has now been met, but he acknowledged that the



study was observational and not a prospective, randomized trial. Nonetheless, the size and duration of the study, as well as the striking magnitude of beneficial effect, should be persuasive, said Dr. Budoff, program director of cardiology at the Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center.

In his study, 2,538 symptomatic patients referred for assessment of possible coronary disease and evaluated by coronary CT had a 52% reduced risk of all-cause death during an average 6.7-year follow-up compared with a similar group of 1,706 patients whose work-up did not include CT angiography.

"Increased awareness of coronary artery disease severity among people undergoing CT angiography may have contributed to their survival," Dr. Budoff said.

"Probable mechanisms include increased adherence to and use of anti-atherosclerotic therapies, such as statins, angiotensin-converting enzyme inhibitors, and anti-platelet drugs" such as aspirin, he added.

Dr. Budoff shows patients in his clinic who undergo coronary CT and have coronary calcium six images of their coronary arteries that depict the calcium deposits and stenoses.

"I think that this is something that leads to compliance. It's very black and white. Patients can see their plaque and

stenosis and know they need treatment," he said in an interview. Patients also receive their calcium scores.

The total of 4,244 symptomatic patients in the study had an average age of 58, and 62% did not have known coronary artery disease. The patients who underwent coronary CT and those who received standard care without coronary CT imaging were treated in the academic cardiology clinic at Harbor-UCLA. The two groups were matched by age, gender, the time when they were first seen, and their conventional cardiac risk factors.

All patients undergoing coronary CT had the examination covered by their insurance providers; none of the patients paid for the exam out of pocket. One factor that the study did not control for was socioeconomic status. The patients who did not undergo CT angiography may have been, as a group, somewhat poorer than those who had CT examinations, Dr. Budoff said.

During an average 80-month follow-up the all-cause mortality rate was 3% in patients who had CT examinations and 11% in those who did not, a statistically significant difference. Mortality rates began to diverge between the two groups after about 3 years, and then continued to diverge.

In a multivariate analysis that controlled for age, gender, and coronary risk factors, patients who had standard care had a fourfold higher risk of dying than did those who had CT angiography.

Dr. Budoff has served on the speakers bureau for GE, a company that markets CT equipment. None of his associates in the study had any financial disclosures. ■

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DR. BUDOFF

Patients With Acute MI Get High Radiation Doses

BY BRUCE JANCIN

ORLANDO — Patients hospitalized for acute MI receive an average cumulative ionizing radiation dose from imaging studies that's equivalent to 725 chest x-rays, a study indicated.



The study of 64,074 consecutive MI patients admitted at 49 academic hospitals during 2006-2009 showed that they received an average of four imaging studies involving ionizing radiation exposure totaling 14.52 mSv per admission, Dr. Prashant Kaul reported at the annual scientific sessions of the American Heart Association.

That's nearly 5 times the average person's annual background radiation exposure, and close to 30% of the annual maximum permitted for radiation workers, noted Dr. Kaul, a cardiovascular medicine fellow at Duke University, Durham, N.C.

He and his coinvestigators are now trying to figure out how much of this radiation exposure might have been avoidable.

The study points to a new way to consider radiation safety in the medical environment, Dr. Kaul noted.

"Up until this point we've been thinking about radiation as it relates to an individual imaging test," Dr. Kaul said. "How much radiation

'It may be more appropriate to think about radiation doses per episode of care for a given diagnosis.'

DR. KAUL

do I get with a CT scan? How much do I get with a cardiac catheterization? We're thinking about these doses in isolation. But we believe that it may be more appropriate to think about radiation doses per episode of care for a given diagnosis," he said. ■



MI patients receive nearly 5 times the average radiation exposure.

Childhood Obesity Boosts LV Size, Cardiovascular Risk

BY MITCHEL L. ZOLER

ORLANDO — A growing number of American children have increased left ventricular mass, a marker for cardiovascular disease risk.

The finding was noted in a study that included 700 children and "is the first study to look at average left ventricular mass in the whole pediatric population," according to Dr. David I. Crowley, a pediatric cardiologist at Cincinnati Children's Hospital.

In children with an average age of 10 years, mean left ventricular (LV) mass rose by a statistically significant 4% from 1986 to 2008. The prevalence of LV hypertrophy in the children more than doubled, from 7% to 15%, Dr. Crowley said at the annual scientific sessions of the American Heart Association.

The increase appears to be linked to obesity. In the 1986-1988 cohort of 350 children examined at Cincinnati Children's, the prevalence of overweight was 14% and of obesity was 5%. In a matched cohort of 350 children assessed in 2008, the prevalence of overweight was 15% but the prevalence of obesity soared to 19%. Results from a multivariate analysis showed that body mass index was a major determinant of LV mass, Dr. Crowley said.

The study included children aged 2-19 years. The participants came to Cincinnati

Children's in 1986-1988 for an echocardiography examination because of a murmur, palpitations, syncope, or chest pain. All 350 children included in the analysis had normal cardiac anatomy and function, and none had systemic disease or a body mass index of 40 kg/m² or more. Dr. Crowley and his associates identified 350 children matched by age and gender who underwent echocardiography

In the 2008 cohort, 'the prevalence of obesity soared to 19%' vs. 5% in the 1986-1988 cohort.

DR. CROWLEY

at their center during 2008 for similar reasons and met similar clinical criteria. Both cohorts were 60% boys, and 82% or 83% were white. Analysis of the echocardiographic data showed that, in addition to having larger hearts, the more recently evaluated children also had a greater prevalence of high-risk cardiac morphology. The prevalence of eccentric hypertrophy was 6% in the 1986-1988 group and 12% in the 2008 cohort. The prevalence of concentric hypertrophy also doubled in the more recent cohort.

Although average LV mass rose by only 4% from the older to more contemporary cohort, this difference is important, said Dr. Stephen R. Daniels. "When you look at a population and a value gets worse by even a small amount, it suggests that many more in the population may now be in a high-risk category," said Dr. Daniels, a pediatric cardiologist at the University of Colorado in Denver.

Dr. Crowley had no financial conflicts. ■

