

## Large left atrium predicts adverse cardiovascular events

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Left atrial volume index can predict major cardiovascular problems, according to a study published online April 20 in the American Journal of Cardiology.

The study showed that patients with an enlarged left atrium had a significantly higher risk of developing adverse cardiovascular events, lead investigator Dr. Dominic Leung, a cardiologist at University of South Wales in Australia, told Reuters Health.

Previous evidence has suggested that an enlarged left atrium, or left atrial volume index (LAVI), is a risk factor for adverse cardiovascular outcomes, including ventricular, atrial or valvular disease. These studies, however, have primarily focused on older patients with existing cardiovascular conditions or small sample sizes and short follow-up periods.

In the current prospective study, Dr. Leung and his colleagues at the University of South Wales investigated the independent risk factors for LAVI in a 483 patients (mean age, 47.3 years) with normal sinus rhythm. These patients had received a transthoracic echocardiogram at the Liverpool Hospital Cardiology Department in 2000 and were followed up for a median of 6.8 years.

Primary endpoints included death from any cause, death from cardiovascular events, myocardial infarction, heart failure, atrial fibrillation, stroke, and symptomatic peripheral vascular disease.

At baseline, patients had a median maximum LAVI of 24 ml/m<sup>2</sup>. Dr. Leung's team conducted patient follow-up via telephone interview using a standard questionnaire. Of the 470 patients who completed the follow-up, 18.3% reached the primary endpoint and 31% experienced at least one clinical endpoint event. Based on the Cox regression analysis, significant predictors of cardiovascular mortality were older age ( $P<0.001$ ), history of myocardial infarction ( $P=0.037$ ), history of stroke ( $P=0.001$ ), chronic renal failure ( $P<0.001$ ), hypertension ( $P=0.005$ ), diabetes ( $P<0.001$ ), maximum LAVI  $\geq 24$  ml/m<sup>2</sup> ( $P=0.04$ ), and LV hypertrophy ( $P<0.001$ ).

Dr. Leung also determined that the significant univariate predictors of total mortality were older age ( $P<0.001$ ), a history of myocardial infarction ( $P=0.014$ ), history of stroke ( $P=0.008$ ), chronic renal failure ( $P<0.001$ ), hypertension ( $P=0.001$ ), diabetes ( $P<0.001$ ), and left ventricular hypertrophy ( $P=0.003$ ).

Overall, however, an enlarged maximum LAVI  $\geq 24$  ml/m<sup>2</sup> was the only independent echocardiographic predictor for a major cardiovascular event (HR 1.72,  $P=0.018$ ), indicating an increased risk of cardiovascular death, heart failure, atrial fibrillation, stroke, or myocardial infarction.

"The predictive values of an enlarged left atrium were incremental to the usual predictors, said Dr. Leung. This result is important because "if the predictive values of enlarged atrium become lost in the well-established markers, then an enlarged atrium would not offer any additional value to what we know already," said Dr. Leung.

Dr. Leung concluded that "measuring the size of the left atrium will be a helpful parameter to indicate if a patient has an increased risk of future adverse cardiovascular events."

American Journal of Cardiology, 2010.