MONTRÉAL — Patients with type 2 diabetes had abnormally elevated pulmonary capillary wedge pressure and reduced myocardial perfusion indexes during exercise testing in a small pilot study.

This inverse correlation was present even in the absence of obstructive coronary artery disease or diastolic dysfunction, Dr. Marcus Chen and colleagues reported in a poster at the annual meeting of the American Society of Nuclear Cardiology.

People with type 2 diabetes and no known cardiovascular disease are known to have a reduced ability to exercise, but the mechanism of impairment is not well established. One possibility is that exercise capacity is impaired due to relative cardiac underperfusion, Dr. Chen, a cardiology fellow at the University of Colorado at Denver and Health Sciences Center, said.

The study included seven women with uncomplicated type 2 diabetes for an average of 3 years, and seven nondiabetic women matched for age (42 years vs. 43 years), weight (body mass index of 28 kg/m² vs. 32 kg/m²), and physical activity level. All patients underwent resting echocardiography that was normal, with no evidence of diastolic dysfunction; and myocardial perfusion single-photon computed tomography (SPECT) imaging using a 2-day stress-rest protocol with technetium 99m sestamibi. Patients referred for clinically indicated rest/stress myocardial perfusion imaging (MPI) were used to prevent adenosine-related side effects during myocardial perfusion imaging (MPI). Arm-pumping exercise is utilized in all patients who are unable to safely negotiate a treadmill, Dr. Arash Kardan, of the hospital, said in an interview at the annual meeting of the American Society of Nuclear Cardiology.

Supplemental exercise is thought to mitigate adenosine-related bradycardia and hypotension via a neurocirculatory response, he said. “It really works; it’s not just a distraction for the patient.”

The study included 302 patients referred for clinically indicated rest/stress MPI with technetium 99m sestamibi. Patients underwent either exercise stress testing using the standard Bruce protocol achieving 85% of maximum predicted heart rate, or received an adenosine infusion of 0.14 μg/kg per minute for 4.5 minutes in one arm and pumped a 2.5-pound weight with their opposite arm.

All patients underwent coronary angiography within 2 months of MPI. Positive MPI was defined as showing a reversible defect; positive angiography was defined as the presence of any lesion with greater than 50% stenosis. One-third of patients had prior reported coronary artery disease.

Arm-pumping exercise stress tests were performed in 158 patients in the exercise stress group, with a mean age of 63 years, sensitivity was 91% and specificity 100%, the authors reported.

In the 144 patients in the arm exercise group, with a mean age of 68 years, sensitivity was 84% and specificity 81%. The differences from the exercise stress group were non-significant. No adenosine arm tests required termination because of side effects. All exercise treadmill tests were completed as well, he said.

The hospital has performed more than 10,000 adenosine tests using the arm-pumping exercises, and less than 1% of tests have been terminated, said Dr. Kardan.

ASPECT Detects Early Ischemia in Lupus Patients

MONTRÉAL — Patients with systemic lupus erythematosus demonstrated significantly more perfusion abnormalities on gated single photon emission CT (SPECT) scans for the diagnosis of coronary artery disease (CAD) in SL patients, compared with well-matched controls, in a small pilot study.

The observed differences may represent early manifestations of cardiomyopathy or silent diffuse myocardial ischemia, Dr. Scott Yoder and colleagues at the University of Rochester (NY) Medical Center reported in a poster at the annual meeting of the American Society of Nuclear Cardiology.

Although several studies have highlighted the utility of gated single photon emission CT (SPECT) scans for the diagnosis of coronary artery disease (CAD) in SL patients, specific recommendations have been formulated. Dr. Yoder advocates routine cardiac screening of all lupus patients, and repeat scans roughly every 6 months for any patient with significant regression of the ischemia at 1 year. His ejection fraction recovered from 22% to 47%, and stress-induced cavity dilatation of the left ventricle improved from 1.68 to 1.24.