

# Doppler Shows Early Heart Changes in DMD

BY DIANA MAHONEY  
New England Bureau

BOSTON — Doppler tissue imaging can detect early changes in the heart muscle of children with Duchenne muscular dystrophy before the onset of disease-induced myocardial dysfunction, Shuping Ge, M.D., said at the annual meeting of the American Society of Echocardiography.

The ability to identify these preclinical changes offers a “window of opportunity” for initiating preventive and therapeutic interventions to delay the irreversible left ventricular remodeling and subsequent heart failure that is the fate of many children with the degenerative musculoskeletal disease as the condition progresses, Dr. Ge said.

To identify and assess changes in global and regional myocardial function, Dr. Ge and colleagues from Baylor College of Medicine, Houston, measured myocardial contraction and relaxation using Doppler tissue imaging (DTI) in 50 children with and without Duchenne muscular dystrophy (DMD) and with and without clinical pump dysfunction. The children enrolled in the study were divided into groups by age, disease presence,

and clinical myocardial status, Dr. Ge said.

The first two groups included 15 children whose mean age was 11.7 years and who had DMD and no cardiac pump dysfunction, and a control group of 15 children mean age 12.8 years without DMD. The second two groups included 10 children whose mean age was 17.6 years with DMD and pump dysfunction, and 10 children mean age 16 years without DMD.

All of the children in the study underwent conventional and DTI ultrasound to measure left ventricular dimensions, global pump function, and regional systolic and diastolic function.

Global pump function or left ventricular size did not differ among the younger patients regardless of whether they had DMD. However, DTI showed significant myocardial systolic and diastolic dysfunction in the children with DMD. “Even though the hearts were still pumping correctly,

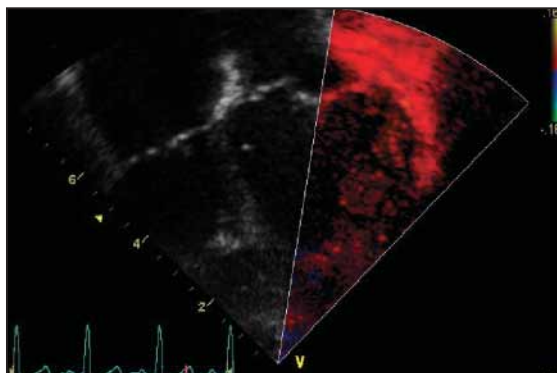
the velocity at which the walls of the heart were moving was often abnormal in patients [with DMD],” Dr. Ge said.

In the two older groups, the differences in DTI measurements were more pronounced, which was consistent with the clinical pump dysfunction, Dr. Ge noted. Heart failure usually occurs in DMD patients when they enter their late teenage years, when the progressive heart muscle weakness keeps it from pumping enough blood to sustain the rest of the body.

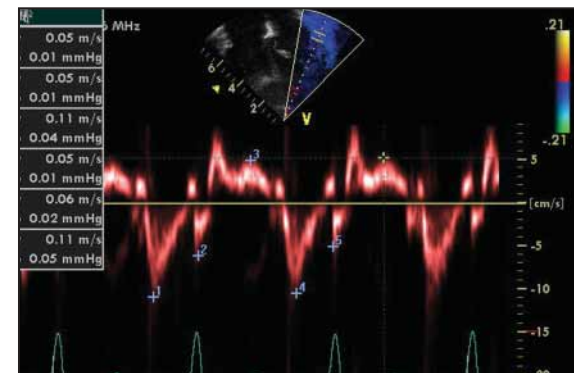
The fact that regional myocardial function alterations were discovered using DTI in the younger patients despite no changes

in global ventricular function as assessed via conventional echocardiographic measures suggests that DTI should be part of the screening process for the early diagnosis of cardiomyopathy in DMD patients. The results show that DTI “is more sensitive than conventional echocardiography in detecting preclinical myocardial abnormalities before the occurrence of left ventricular dilation and dysfunction,” Dr. Ge said.

The early detection of myocardial abnormalities associated with DMD might aid in the prevention of irreversible myocardial fibrosis and further left ventricular remodeling, Dr. Ge said. ■



Abnormalities of the lateral wall of the left ventricle are shown on Doppler tissue imaging.



Pulsed wave Doppler tracings and velocities show myocardial abnormalities much later.

PHOTOS COURTESY DR. SHUPING GE

## Maximize the benefit of osteoporosis therapy with Os-Cal + D.

The efficacy of bisphosphonates, PTH,\* SERMS<sup>†</sup> and calcitonin depends on adequate calcium and vitamin D<sup>1</sup>

- All bisphosphonate studies performed for osteoporosis indication included adequate calcium and vitamin D<sup>1</sup>
- Bisphosphonates require adequate calcium to deposit new bone mineral<sup>1</sup>
- FDA states: “Calcium and vitamin D supplements are an integral part of all treatments for osteoporosis”<sup>2</sup>

With every osteoporosis medication you prescribe, recommend Os-Cal + D for:

- Reduced risk of misuse with medication—bisphosphonates are taken on an empty stomach, Os-Cal + D is taken with food
- Affordable convenience—highest concentration of elemental calcium in each tablet means patients take fewer and smaller Os-Cal + D tablets vs Citracal<sup>®3</sup>

# OS-CAL<sup>®</sup> + D

For optimal osteoporosis medication efficacy, recommend...

Citracal is a registered trademark of Mission Pharmacal Company.  
\*Parathyroid hormone.  
<sup>†</sup>Selective estrogen receptor modulators.

References: 1. Sunyecz JA, Weisman SM. The role of calcium in osteoporosis drug therapy. *J Womens Health*. 2005;14:180-192. 2. US Food and Drug Administration Web site. Boning up on osteoporosis. 2003. Available at: [http://www.fda.gov/fdac/features/796\\_bone.html](http://www.fda.gov/fdac/features/796_bone.html). Accessed May 6, 2005. 3. Citracal Caplets + D product labeling.

**gsk**  
GlaxoSmithKline

© 2005 GlaxoSmithKline

All rights reserved.

June 2005

