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SCHOOL-AGED CHILDREN'S INTELLECTUAL POTENTIAL HINDERED BY CONGENITAL VASCULAR ABNORMALITIES

Surgery May Restore School Performance

CHICAGO, IL – School-aged children with untreated vascular ring (VR) abnormalities—malformations in the main vessels coming out of the heart that often develop before birth—have lower intellectual capabilities than healthy children, according to data presented today at the American College of Cardiology's 57th Annual Scientific Session. These effects are reversible after surgery, the standard treatment for VR.

“Our study suggests early diagnosis and treatment of these abnormalities are needed to preserve and promote intellectual performance in school,” said Shuping Ge, M.D., of the Baylor College of Medicine and Texas Children's Hospital, Houston, Texas. “After undergoing surgical intervention, children with VR showed dramatic improvements in intellectual performance across a variety of tasks.”

Currently, the indication for surgery for congenital VR abnormalities is based on symptoms of tracheal and esophageal compression early in life, but not all children exhibit these symptoms.

“Children with subtle symptoms of breathing or swallowing difficulties, or recurrent respiratory infections, may still be indicated for surgical intervention to restore their intellectual performance if our findings are further validated,” said Dr. Ge. “In this regard, our study raised an important question and challenged the traditional paradigm of relieving VR only when it is clinically significant.”

In this study, a total of 49 school-aged children (age: 10.1 ± 3.3 years) with newly diagnosed VR were prospectively studied. For comparison, 20 healthy children (age: 9.7 ± 1.4 years) were also enrolled. Researchers used the most commonly performed test to assess intellectual abilities. Children with VR had significantly lower overall intelligence, verbal comprehension (vocabulary, similarities, etc.), perceptual reasoning (block design, picture concept, etc.), processing speed (coding, symbol search, etc.), and working memory (digit span, letter-number sequencing, etc.). Intellectual performance on all of these tests was variably, but significantly improved after surgical treatment at one year follow up.

Dr. Ge and his team stress the importance of additional clinical research into new paradigms of early diagnosis and treatment to prevent poor school performance in these children.

Fong-Lin Chen, M.D., Ph. D., of Chung Shan Medical University Hospital in Taiwan, and collaborator on this study, will present "Congenital Vascular Ring Abnormalities Are Associated With Reversible Lower Intellectual Performance in School Aged Children: Potential Impact of Early Diagnosis and Intervention" with Dr. Ge on Monday, March 31, at 9:00 a.m. in South Hall.

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The American College of Cardiology (www.acc.org) represents the majority of board certified cardiovascular physicians in the United States. Its mission is to advocate for quality cardiovascular care through education, research, promotion, development and application of standards and guidelines- and to influence health care policy. ACC.08 is the largest cardiovascular meeting, bringing together cardiologists and cardiovascular specialists to share the newest discoveries in treatment and prevention, while helping the ACC achieve its mission to address and improve issues in cardiovascular medicine.