majority of cardiac surgeons, and consequently our findings reflect a 'real-world' situation."

Lorenzo Guerrieri Wolf, MD

Bikram P. Choudhary, MRCS

Yasir Abu-Omer, MRCS

David P. Taggart, MD (Hons), PhD,

FRCS

Department of Cardiothoracic Surgery

John Radcliffe Hospital

Oxford, United Kingdom

References

1. Guerrieri Wolf L, Choudhary BP, Abu-Omar Y, Taggart DP. Solid and gaseous cerebral microembolization after biological and mechanical aortic valve replacement: investigation with multirange and multifrequency transcranial Doppler ultrasound. *J Thorac Cardiovasc Surg.* 2008;135:512-20.
2. Markus HS, Punter M. Can transcranial Doppler discriminate between solid and gaseous microemboli? Assessment of a dual-frequency transducer system. *Stroke.* 2005;36:1731-4.

doi:10.1016/j.jtcvs.2008.07.003

CONTEGRA AND EXTRACARDIAC FONTAN

To the Editor:

We read with the greatest interest the article entitled "Feasibility of the Extracardiac Conduit Fontan Procedure in Patients Weighing Less than 10 Kilograms."¹ After congratulating the authors for their excellent work, we have a few comments.

As a Fontan Conduit, they used polytetrafluoroethylene (Gore-Tex; WL Gore & Associates Inc, Flagstaff, Ariz) (14–20 mm in diameter) King Faisal Specialist Hospital and Research Center in Jeddah, used Contegra valved conduits in 4 patients for inferior vena cava–right pulmonary artery connection (Fontan). They speculated that an additional benefit of using the Contegra xenograft could be that it provides a competent valve in the Fontan circulation, which might help by reducing the reversal of flow and maintaining better forward flow into the pulmonary circulation. The concern was whether the valve, in a nonpulsatile, passive Fontan circulation, would facilitate smooth antegrade flow into the pulmonary circula-

tion or act as a source of resistance to the flow. The findings that none of their patients had hepatomegaly or ascites on physical examination and that the post-operative echocardiograms showed excellent antegrade flow in the inferior vena cava, which also was not dilated, and minimal flow reversal in the hepatic veins support the facilitation of smooth forward flow. They presented a new option for constructing an extracardiac Fontan connection with the Contegra xenograft that has not been previously published. Their early echocardiographic results supported the idea of minimizing the reversal of infradiaphragmatic venous flow, decreasing hepatic congestion, and possibly reducing the development of ascites.² They do have a way of assessing the conduit size by using Rowlatt and colleagues' chart.³

The authors routinely administered 5 mg/kg ticlopidine as antiplatelet therapy. Warfarin was not used even though they had a patient with arteriovenous valve replacement. How did they control the thrombogenic potential here?

Measurement of the lower lobe index is an important adjunct to evaluate candidates for the Fontan operation. The predictive value of the Nakata index is less informative than the lower lobe index, which was introduced to optimize the preoperative selection of Fontan candidates. Lower lobe index may be more predictive to evaluate the adequacy of the pulmonary vascular tree, given that central pulmonary arteries used to calculate the Nakata index can be enlarged before or during the Fontan operation.⁴

Sameh Ibrahim Sersar, MD

Ahmed A. Jamjoom, MD

Division of Cardiothoracic Surgery

Department of Cardiovascular

Diseases

King Faisal Specialist Hospital and

Research Center

Jeddah, Saudi Arabia

References

1. Ikai A, Fujimoto Y, Hirose K, Ota N, Tosaka Y, Nakata T, et al. Feasibility of the extracardiac conduit Fontan procedure in patients weighing less

than 10 kilograms. *J Thorac Cardiovasc Surg.* 2008;135:1145-52.

2. Baslaim G, Hussain A, Kouatli A, Jamjoom A. Bovine valved xenograft conduits in the extracardiac Fontan procedure. *J Thorac Cardiovasc Surg.* 2003;126:586-8.
3. Rowlatt JF, Rimaldi JMA, Lev M. The quantitative anatomy of the normal child's heart. *Pediatr Clin North Am.* 1963;10:499-588.
4. Ovroutski S, Alexi-Meskishvili V. Does the Nakata index predict outcome after Fontan operation? *Eur J Cardiothorac Surg.* 2008;33:951.

doi:10.1016/j.jtcvs.2008.05.067

Reply to the Editor:

We appreciate Dr Sersar's comments on our recent article, "Feasibility of the Extracardiac Conduit Fontan Procedure in Patients Weighing Less than 10 Kilograms." These comments raise several questions concerning the following: (1) choice of conduit type, (2) anticoagulation therapy after the Fontan procedure, and (3) examination of the pulmonary arteries for evaluating the pulmonary vascular tree.

In our article, we describe our strategy for the extracardiac Fontan operation without fenestration. Our strategy aimed to eliminate cyanosis as soon as possible. Fenestration might reduce the duration of pleural drainage but cannot eliminate cyanosis even after the Fontan procedure. We mentioned in the article that peritoneal drainage might be able to reduce the duration of pleural drainage in small children in particular. In addition to the obvious purpose of the drainage of ascites itself, drainage of ascites also results in the drainage of the inflammatory factors present in the ascites.¹ In our series at least, there were no patients with recurrent ascites after the cessation of the initial peritoneal drainage. We have a chance to use a Contegra conduit² if this conduit is an attractive option for reducing ascites and pleural effusion. However, the use of this conduit for the Fontan operation is not permitted in Japan. The fate of the conduit as a xenograft, especially in terms of obstruction of conduit and durability of valve function, over the long term should be investigated.