Yet another risk factor appears

Erin E. Gordon, DO, a and R. D. B. Jaquiss, MD b

From the Departments of aPediatrics and bThoracic and Cardiovascular Surgery, UT Southwestern Medical Center and Children’s Medical Center, Dallas, Tex.

Disclosures: Authors have nothing to disclose with regard to commercial support.

Received for publication Aug 26, 2017; accepted for publication Aug 30, 2017; available ahead of print Oct 3, 2017.

Address for reprints: R. D. B. Jaquiss, MD, Department of Thoracic and Cardiovascular Surgery, UT Southwestern Medical Center and Children’s Medical Center, 1935 Medical District Dr, Dallas, TX 75235 (E-mail: Robert.jaquiss@utsouthwestern.edu).

J Thorac Cardiovasc Surg 2018;155:1148-9
0022-5223/$36.00
Copyright © 2017 by The American Association for Thoracic Surgery
http://dx.doi.org/10.1016/j.jtcvs.2017.08.105

Although survival for neonates, children, and adolescents undergoing surgery for congenital heart disease has increased dramatically due to medical and surgical advancements, such patients remain at risk for neurodevelopmental impairment, with a significant unexplained individual variability in early and late neurologic outcomes.1 Investigators have examined the associations of poor neurologic outcomes with potential risk factors such as type of congenital heart disease, degree of cyanosis, timing of surgery, anesthetic exposures (ie, number of cardiac and noncardiac surgical procedures), parental education and socioeconomic status, biomarkers, and pre- and postoperative management. The present work by Kim and colleagues2 explores a new type of potential risk factor for adverse neurologic outcomes: A genetic variation in the innate immune system. The authors retrospectively analyzed a cohort of nonsyndromic infants with congenital heart disease, comparing neurodevelopmental outcomes in those with the missense mutation in the MBL2 gene resulting in mannose-binding lectin (MBL) deficiency to outcomes in those with normal MBL levels. At age 4 years, neurodevelopmental status was assessed in 3 domains: full-scale intellectual quotient, visual motor integration, and using the Child Behavior Checklist. A statistically significant association between the MBL-deficient genotype group and pervasive developmental problems was found (P = .0025). Additionally, this association was amplified in those children requiring surgical interventional earlier in life (P = .039).

The findings are consistent with other studies in juvenile and pediatric subjects that demonstrate that MBL deficiency is associated with worse neurologic outcomes,3-5 although an opposite effect has been reported in mature subjects.6,7 This paradox of apparently contradictory implications of MBL deficiency, with outcomes that are better or worse depending on age, is mirrored in the present study wherein the MBL-deficient cohort had worse neurologic outcomes but shorter (ie, better) length of hospital stay. Although this was not a primary focus of study and the outcome is a so-called soft outcome, the finding suggests a more salutary early postsurgical course for MBL-deficient patients.

References


