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Commentary: Less is probably more

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The authors speak with clarity on an issue that is much debated and rarely studied. The central clinical question regards the utility of pulmonary arterioplasty in the setting of neonates and infants at risk for pulmonary coarctation and undergoing a systemic to pulmonary artery shunt.¹ When searching for clear answers on the matter, there are a number of challenges; inconsistencies exist in defining pulmonary coarctation and accurately defining patients truly at risk. Previous work describes heterogeneous populations, inconsistent thresholds triggering pulmonary arterioplasty, diverse measures of outcome describing benefit, and an understandable lack of comparators.^{2,3}

The current series describes outcomes of 130 patients with ductal dependent pulmonary artery blood flow destined for biventricular and single-ventricle repair pathways palliated with a systemic to pulmonary artery shunt. They excluded those with ductal-dependent systemic circulation from this review. They clearly define their criteria for diagnosis of pulmonary coarctation—a discrete narrowing of the pulmonary artery with a diameter of <3.0 mm where the ductus inserts, as well as their threshold to perform pulmonary arterioplasty at time of shunt creation—a discrete narrowing of the pulmonary artery of <2.0 mm where the ductus inserts. Twenty-nine patients in the series had a pulmonary coarctation. Fourteen met criteria for pulmonary arterioplasty at the time of shunt creation. Reintervention rates were significantly higher for the cohort with pulmonary coarctation but did not differ within that group regardless of whether concomitant pulmonary arterioplasty was performed. Eighty-five percent of the entire cohort achieved the planned complete repair or final stage palliation. Although

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CENTRAL MESSAGE

“Pre-emptive” pulmonary arterioplasty, in those with the apparent substrate for pulmonary coarctation, might not be necessary at the time of systemic to pulmonary artery shunt creation.

reinterventions were associated with failure to achieve definitive repair, the rate of definitive repair was similar among those with and without pulmonary coarctation (86% vs 83%).

The study was limited by the typical concerns with congenital cardiac surgical series. The data are on the basis of a retrospective single-center review with small numbers with regard to the matter in question. Nevertheless, the study is well done and contributes valuable information. Many shunts can be performed without cardiopulmonary bypass, but bypass is likely to be required if formal arterioplasty is performed. The data suggest that the additional work might not provide substantial benefit, and we should not automatically reflex to a bypass-requiring procedure just because we “feel” that pulmonary coarctation is likely to develop. Less is probably more in these circumstances.

In some respects, this field is being redefined by interventional cardiologists and the advent of ductal stenting. We have seen that the substrate for pulmonary coarctation, or its development, can be managed with an additional stent—the benefit appears to be good development of distal pulmonary artery development, but the cost includes the need for central pulmonary artery reconstruction at the time of ductal stent takedown. Clearly surgery still has something to offer in selected cases, and cardiac catheterization also carries substantial risk, but avoidance of bypass

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during the neonatal phase is a powerful promoter of the stent-based approach. Although a comparison of approaches is planned, it seems equipoise might already have been lost by many participants.

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