It's not about “can we” but “should we”

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Wilder and colleagues,¹ from Toronto, Hospital for Sick Children, report on 453 children undergoing repair of tetralogy Fallot. Their analysis includes 3 patient cohorts: an *IDEAL* group (comprising 75% of the patients) that underwent surgical repair electively after 3 months of age; an *EARLY* group (9%) that underwent operation on presentation of symptoms at less than 3 months; and a *CATH* group (6%) that initially underwent stenting of the right ventricular outflow tract on symptomatic presentation at less than 3 months followed by elective repair at an average of 4.5 months of age. With comparison between the *EARLY* and *CATH* groups only (the *IDEAL* group included only as a reference in the analysis), Wilder and colleagues¹ concluded that early primary repair may increase surgical reoperation rates, whereas transcatheter palliation comes at a cost of increased catheter reintervention. Furthermore, they stated that overall outcomes between groups in terms of survival, somatic growth, branch pulmonary artery growth, and hemodynamic parameters are comparable.

This report comes from a well-known and experienced center and includes a large number of patients. Their expertise in stenting the right ventricular outflow tract in selected patients demonstrates comparable outcomes to surgical repair strategies extending to 8 years of follow-up. Some of the challenges with the article relate to the complex statistical methodologies used. In addition, this is a single-institution, nonrandomized, retrospective review. By definition, the 2 groups for comparison, *EARLY* and *CATH*, are not comparable based on selection criteria used to determine the respective treatment strategies, with significant differences in variables such as patient age, body surface area, and minimum pulmonary artery size. Therefore, the ability to compare these 2 treatment strategies is problematic. However, the valuable message of this report is that in selected patients with specific indications, stenting of the right ventricular outflow tract is a safe and effective option.

This brings us to an important point of discussion and relates to it's not all about “can we,” but “should we” and on which patients. The central question with regard

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Central Message

Early primary repair for neonates and transcatheter palliation result in comparable outcomes of survival, growth, and hemodynamic parameters in children with severe TOF. Patient selection is key.

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to this analysis is what to do with the symptomatic patient who presents earlier than 3 months of age and needs something done. One of the main tenets of this report focuses on reintervention or reoperation rates. If one considers the patients who have “any reintervention” after an initial procedure, the fact is that all *CATH* cases undergo a subsequent surgical operation, so that in essence, 100% are have a “reintervention.” Another important outcome measure for the patient with tetralogy of Fallot (TOF) relates to the degree and prevalence of pulmonary insufficiency. Recent reports²⁻⁴ on the long-term follow-up of patients with TOF support the premise that a transannular incision and resultant pulmonary insufficiency is the most important variable that determines long-term reintervention rates for these patients. In this report, for patients in the *CATH* cohort, 61% received a transannular patch and only 18% received a valvotomy (valve sparing attempt). Although absolute conclusions are difficult to draw, it seems that an initial *CATH*-based strategy precludes a valve-sparing approach in the majority of patients.

This report is valuable to those caring for patients with congenital heart disease and TOF in particular. It supports the safe and effective use of right ventricular outflow tract stenting in selected, symptomatic patients with TOF presenting at less than 3 months of age. The important question remains as to which patients are best treated with

this approach. This decision, as always, needs to be made with an *optimal life management plan* in mind for the patient.

References

1. Wilder TJ, Van Arsdell GS, Benson L, Pham-Hung E, Gritti M, Page A, et al. Young infants with severe tetralogy of Fallot: early primary surgery versus transcatheter palliation. *J Thorac Cardiovasc Surg*. 2017;154:1692-700.e2.
2. Cuypers JA, Menting ME, Konings EE, Opić P, Utens EM, Helbing WA, et al. Un-natural history of tetralogy of Fallot: prospective follow-up of 40 years after surgical correction. *Circulation*. 2014;130:1944-53.
3. Lindberg HL, Saatvedt K, Seem E, Hoel T, Birkeland S. Single-center 50 years' experience with surgical management of tetralogy of Fallot. *Eur J Cardiothorac Surg*. 2011;40:538-42.
4. Luijten LW, van den Bosch E, Duppen N, Tanke R, Roos-Hesselink J, Nijveld A, et al. Long-term outcomes of transatrial-transpulmonary repair of tetralogy of Fallot. *Eur J Cardiothorac Surg*. 2015;47:527-34.