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VALVE-SPARING REPAIR DURING REPAIR OF TETRALOGY OF FALLOT: SURGICAL CONTROVERSIES

To the Editor:

The recently published study of Hofferberth and colleagues¹ outlines that a pulmonary valve (PV)–sparing tetralogy of Fallot (ToF) repair by means of an intraoperative balloon dilation (IBD) is associated with the development of a progressive PV insufficiency and right ventricle (RV) dilation. Hofferberth and colleagues¹ conclude that PV-sparing with IBD is not a suitable long-term solution to preserve PV function in patients with TOF.

According to our recent unpublished results, at a median follow-up of 4.1 years (interquartile range, 1.9–5.4 years), none of our patients who underwent PV-sparing ToF repair required further surgical or hemodynamic interventions. The median RV outflow tract gradient was 20 mm Hg (interquartile range, 15–25 mm Hg), and in 75% of the patients, there was either no residual PV regurgitation or only mild residual PV regurgitation.

We believe that our treated population of young infants (most of them <4 months of age) in conjunction with different surgical repair techniques, which included an extensive transpulmonary and transatrial muscle band resection up to the PV annulus and PV dilatation and reconstruction, may have contributed to the avoidance of late RV outflow tract recurrence from residual RV outflow tract obstruction, as seen in the study of Hofferberth and colleagues.¹ In addition, our midterm follow-up data show that RV function was significantly better preserved in a group of patients with TOF treated by IBD and valve-sparing repair than in a matched cohort of patients undergoing a transannular patch repair.^{2,3}

With the concept in mind of preserving the PV function, we learned to avoid the use of oversized balloons (according to the calculated normal PV annulus) during intraoperative PV dilatation. Oversized balloons can lead to tears and partial leaflet avulsions, which are sometimes difficult to repair, and they therefore can jeopardize the postintervention PV function.⁴

We are in agreement with Hofferberth and colleagues' conclusions¹ that IBD, even in association with simple PV plasty maneuvers, is not always effective by itself in preserving PV function during repair. This is especially true for patients with more severe forms (PV z-score <−3), in whom the PV leaflets are usually damaged or the commissures eventually split apart as a result of annular dilation.

We have found that in severe forms of TOF, more complex additional surgical maneuvers on the PV are mandatory for achieving PV competence after IBD. The recent introduction of a delamination plasty technique,^{4,5} which increases the leaflets' coaptation area, allowed us to extend further the applicability of valve-sparing repair after IBD. We have now learned how to treat more severe forms, including also unicuspid PVs, by the re-creation of 1 or more commissures for resuspending the delaminated leaflets' tissue. A longer follow-up is still needed to evaluate the efficacy of our surgical technique.

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