

Evaluation of myocardial function in pediatric patients with the transposition of great arteries after arterial switch operation

D-loop transposition of the great arteries (D-TGA) accounts for 5%-7% of all congenital heart defects, with a prevalence of 0.2 per 1000 live births and male predominance (1, 2). Since Villafañe et al. (3) performed the first successful arterial switch operation (ASO) in 1975, ASO has replaced the atrial switch procedures that were developed by Mustard and Senning, evolving from the main correction adopted for D-TGA. In the following years, refinement of the surgical techniques and improved medical management have contributed to increased survival of D-TGA patients, whose 20-year survival rate reaches almost 90% (3).

Although ASO has drastically improved the prognosis in D-TGA patients, operational anastomoses and manipulations may induce lifelong consequences, some of which may still be unrecognized and require ongoing medical surveillance (3). To date, neopulmonary stenosis, neo-aortic regurgitation, neo-aortic root dilatation, and coronary artery disease have been noted as main "late" complications, while chronotropic incompetence, exercise intolerance, and sudden cardiac death have also been observed (3). Of note, myocardial dysfunction of either the left or right ventricle (LV and RV) after ASO is another point of concern, because current consensus regarding the appropriate interval and modality for surveillance imaging is lacking, whereas the consequences or management strategy after subtle anatomic or physiologic abnormalities are identified, are yet to be defined. For this reason, the paper entitled "Evaluation of myocardial function in pediatric patients with the transposition of great arteries after arterial switch operation" by Öner et al. (4) published in the current issue of *Anatolian Journal of Cardiology* is of potential interest. In this observational case control study, authors included 28 pediatric patients who have undergone ASO (followed at least 6 months after the operation), as well as an age and gender matched group (4). Various functional indices of LV and RV, acquired by "classic" and tissue Doppler echocardiography have been implemented with the authors concluding that LV myocardial performance index (MPI) and the RV tissue Doppler indices appear "impaired" compared to the control group, suggesting that even after short-to mid-term follow-up, systolic and diastolic function of both ventricles are at least "altered" compared to the normal controls (4).

From a critical point of view, the major strength of this paper is its approach towards the potential sequences of ASO on myocardial function, even after a short post-surgery interval. Authors support that echocardiography in addition to the use of tissue Doppler indices may be a useful tool for post-operative assess-

ment of ASO patients capable of detecting even minor deviations from the "normal" range. They also suggest, by their methodology, that these patients should and have to be thoroughly followed-up and searched for "unidentified" complications. Of course, the positive message of this paper should be weighed against inherent limitations of the echocardiographic approach suggested. More specifically, in an era where the echocardiographic "Holy Grail" of myocardial contractility is still under search, while there is still skepticism of how much E/E' ratio can really reflect increased diastolic pressures, it is oversimplification to think that minor changes of commonly used echocardiographic variables such as MPI or tissue Doppler wave values may represent underlying or evolving pathology. Things are further complicated because these indices are implemented in a pediatric population, substantially differing from adult "normal" ranges. In this context, the continuation of follow-up of these ASO patients would be of great importance resulting in potential further changes in the future and presentation of clinical endpoints. In addition, in this case, these subtle systolic and diastolic alterations that were observed have a clinical impact; therefore, evidence based management strategies should be suggested and adopted.

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