See Article page 1714.

Commentary: Out of Africa's unmet needs

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The negative impact of unfavorable socioeconomic conditions on establishing a sustainable cardiovascular surgical program in the developing world has long been recognized.¹ Tamirat and colleagues² reviewed their institutional surgical outcomes in treating left-sided rheumatic valve disease in Ethiopia. Several fundamental messages become apparent upon careful evaluation of this timely report.

First, only 240 consecutive valvular operations were performed at the recently established Ethiopian cardiac center over an 8-year period (2009-2017), with the support of 22 international humanitarian missions. Such a record clearly reflects the huge unmet need for cardiac surgery in sub-Saharan Africa, where 22 cardiac centers serve a population of nearly 1 billion (with an estimated annual demand of at least 300 operations per million people).¹ Second, although early postoperative surgical results were acceptable, the 4-year survival rates (particularly in the bioprosthesis group) were somewhat below usual expectations. Moreover, major adverse valve-related events in these patients appeared to occur far more often than the international standard. Tamirat and colleagues² conclude that this was largely related to the high failure rate of bioprostheses, in combination with little or no access to reintervention in the Ethiopian setting. The lack of effective postoperative follow-up also remains high on the list as a major limiting factor.² Third, on examining the unique patient population in the current study (mean age, 19 years; median, 17 years [interquartile range, 13-24 years]), it is not surprising to see such a high incidence of early bioprosthetic valve failure. Indeed, apart from the probable age-related autoimmune reactions, ongoing rheumatic pathological changes can exacerbate

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CENTRAL MESSAGE

Socioeconomic factors impact substantially on the management of rheumatic valve disease in the developing world. The importance of creating localized surgical expertise can never be overemphasized.

the development of structural valve deterioration in the bioprosthesis group.

Perhaps the most important message arising from the current study goes far beyond the need for better selection of valve prostheses. Tamirat and colleagues² present data that highlights an urgent need for refined valve reconstruction in this young patient population with active rheumatic valvular disease. No doubt, compared with the option of replacement using mechanical prostheses, valve repair is technically much more demanding and is associated with a relatively greater number of adverse valve-related events during follow-up. Nonetheless, similar survival rates were observed between the repair and mechanical prosthesis groups in the current study—much better than the rate in the group receiving bioprostheses. Hence, in view of Africa's huge unmet need for valve surgery and under such restrictive socioeconomic conditions, valve repair seems to offer some light at the end of the tunnel.

Logically, the subsequent question is, How can we achieve this ideal but extremely challenging goal? Socioeconomic solutions, although obviously first and foremost in importance, lie beyond the scope of this brief commentary. Focusing on surgical solutions, adequate training should definitely be the first step. However, are trainers sufficiently prepared to guide local surgical teams in performing valve repair operations in their specific setting? At the recent 28th annual meeting of the Asian Society for

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Cardiovascular and Thoracic Surgery, valve repair in patients with rheumatic heart disease was among the subjects of heated discussion. The interesting consensus of a panel of international experts was that, compared with rheumatic heart disease that is commonly encountered in Europe or in North America, rheumatic heart disease in the developing world is a “different disease” in terms of different patient age groups and pathological characteristics that may necessitate different therapeutic strategies in accordance with the different health care environments. For young patient populations in sub-Saharan Africa, valve repair simply makes more sense. Particularly in patients whose rheumatic valvular lesions are not yet at a very late stage (ie, with heavily calcified valve and subvalvular structures), the chance of reliable repair may also be higher.

At the end of their report, Tamirat and colleagues² offer several thoughtful recommendations for conducting future humanitarian missions, which were extremely valuable. In low-income countries in general, and for the development of a sustainable cardiac surgical program in particular, we all recognize the merit of teaching a man to fish rather

than giving a man a fish. Thus, going to the right place to fish is probably the most critical criterion for proper training in rheumatic valve repair. This is no doubt a serious issue facing both trainers and trainees. Because this “different disease” is simply not widely prevalent in Western countries, the importance of creating localized surgical expertise can never be overemphasized.

Last but not least, despite many known socioeconomic limitations, the lack of continued medical therapy and post-operative follow-up should no longer be tolerated. Building up a reliable multidisciplinary team is definitely a top priority for everyone who participates in this special war against the deadly disease and fights for the ultimate common goal—saving the lives of young people in the developing world.

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