Pediatric cardiac surgery in low- and middle-income countries – Fighting the odds

In this issue of Annals, Murni *et al.* present an article titled, "Outcomes of pediatric cardiac surgery and predictors of major complications in a developing country."[1] The study analyzes the outcomes of pediatric cardiac surgeries performed at the Dr. Cipto Mangunkusumo Hospital in Jakarta, Indonesia, over a period of 1 year. They report a 13.6% 30-day mortality and a 19% incidence of major complications in a cohort of patients that were predominantly (95%) in RACHS Category 1 or 2. These outcomes do not bear comparison to internationally accepted standards for pediatric cardiac surgery, and this in itself would be enough justification for any journal to reject the manuscript outright.

However, the honestly reported study brings to light the reality that exists in numerous cardiac units spread all over the developing world (or more appropriately called the "low- and middle-income countries" [LMICs]), which attempt to provide pediatric cardiac surgery while battling great odds. Many cardiac units have similar results for pediatric cardiac surgery and many units that have good outcomes now had such results to start with. Problems of late presentation, malnutrition, respiratory and bloodstream infections, and limitations of financial and workforce resources are widespread in these countries and contribute in large measure to suboptimal outcomes. Many such units have limited access to help and guidance from more experienced centers and often have no option but to work out their own ways to improve outcomes. The focus of most medical journals today is to publish studies that either showcase exemplary clinical outcomes with complex surgical procedures, describe new technologies and innovations, or involve laboratory research in basic sciences or long-term follow-up data often with complex statistical analysis. It has to be borne in mind that over two-thirds of the babies with congenital heart disease today are born in the LMICs and much of this information is largely irrelevant to them because they have no access to these resources and are struggling to provide even basic cardiac care. Studies like that of Murni *et al.* would not meet the high standards of leading medical journals.

However, don't those attempting to beat the odds deserve their say? Underneath the numbers depicting suboptimal outcomes lays a story of a team of healthcare providers that is doing what others in that region are incapable or reluctant to do. They are aware of their shortcomings and are eager to improve. The first step in improvement is introspection. This involves documenting and maintaining good clinical data, analyzing it, and then attempting to elucidate causes of major morbidity and mortality that can be improved upon. Subjecting the data to peer review allows inputs from a larger field of seasoned experts with its given advantages. Murni *et al.* need to be congratulated for honestly and boldly presenting their clinical results and the analysis of their meticulously collected data and it would have been remiss of the journal not to publish it.

The problems of delivery of cardiac care in resource-limited countries have been the subject of many published articles.[2,3] However, these focus on the larger picture which, while important, does little to help the healthcare teams at the ground level. There are far fewer publications that actually show outcomes and outcome analysis from smaller nascent pediatric cardiac units. These units need guidance for improvement without added burden on their limited resources. For this, they would need to look at other units within the developing world that have faced and overcome similar problems without taking recourse to expensive technology or enhanced manpower. There are a few published reports that address the problems of late presentation, infections and other pertinent problems of LMICs with potential solutions[4-6] and more of such publications are required for pediatric cardiac care to improve in these regions. As suggested in the article, there is need for greater interaction and networking between cardiac units within the LMICs because the challenges are the same and many have learned ways to overcome many of them.

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