Letters to the Editor

Exercise Restrictions After Balloon Aortic Valvuloplasty

We read with interest the study of outcomes after balloon aortic valvuloplasty recently published by Brown et al. (1), and the accompanying editorial by Rome (2). The authors have valuably demonstrated the outcome of patients who have had balloon aortic valvuloplasty and shown that sudden death in this young patient population is rare. Their paper and Dr. Rome's editorial also remind readers that any recommendations for exercise restrictions in these patients are not evidence-based and that such restrictions have risks as well as benefits.

Many of us rely upon the 36th Bethesda Conference guidelines (3) when imposing restrictions on our young patients. These guidelines, however, are intended for competitive athletes and not for young children. They are stated to be “most easily applied to high school, college, and professional sports” with deference to the clinician’s individual judgment for youth sports activities, “particularly for those children less than age 12 years” (3).

The authors’ choice to extend the evaluation of exercise restriction in aortic stenosis down to patients as young as 4 years of age increases the number of patient-years in the assessment, but perhaps not in a meaningful way. In the subgroup of 403 patients in whom an exercise recommendation could be determined, many patients were not old enough for such a recommendation to be applicable for much of the study period. In those patients with an exercise restriction, follow-up began at a mean age of 4 years and lasted for an average of 14.4 years. Those in whom there was no exercise restriction began follow-up at a mean age of 3 years for an average duration of 12.1 years. If one limits the data to those patients old enough to participate in competitive sports, and further to those who chose to participate, the study sample size and available years of follow-up would decrease significantly. To appropriately assess the population of young athletes at highest theoretic risk for life-threatening events will likely require a larger, multicenter study.

Brown et al. (1) should be congratulated for lighting a candle in the darkness of our understanding of sudden death in the context of aortic stenosis, and they raise important questions about our recommendations for our patients’ activity. Unfortunately, it is still pretty dark out there.

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REFERENCES

Reply

We thank Drs. Hokanson and Ralphe for their interest in our paper and comments on our findings (1). Although the Bethesda Conference guidelines were written to apply to patients 12 years of age and older, this age was arbitrarily chosen by the consensus committee as an age at which participation in organized sports with systematic (usually intense) training and regular competition becomes common. However, the consensus panel clearly recognized the possibility of application to all ages, and noted that clinicians “may want to use individual judgment in defining competitive forms of physical activity . . . particularly those for children less than age 12 years” (2). In our experience, organized athletics with intense training and competition are quite common in the United States in those younger than age 12 years, and many clinicians do apply these restrictions to patients as young as 4 years; hence, we chose to include those patient-years in our follow-up.

The assumption that any exercise-associated risk of sudden death is highest in young athletes is based on theoretical considerations and not on documented risk. We agree that it requires extremely large studies to establish an absence of risk. Unfortunately, case reports and case series that are void of any statistical considerations are often accepted as evidence of risk and, in the absence of better data, are used to develop consensus guidelines. This situation is quite parallel to the recommendations for subacute bacterial endocarditis prophylaxis in patients with congenital heart disease, where case reports rather than population-based studies of endocarditis were used to justify population-wide management, recommendations that have subsequently been rescinded. This prejudice is prevalent throughout medicine and proceeds from the justifiable desire to minimize risks. However, as is the case with young patients with aortic stenosis, sometimes avoidance of theoretical risk means exclusion of activities with clinically proven benefit.

The issue the practicing clinician faces on a daily basis is whether a theoretical, but unproven, risk should prompt an exclusion from athletics participation with all of the extremely well-documented benefits of vigorous exercise. The risk-benefit considerations here are quite complex because regular exercise participation has been clearly documented to reduce overall risk of sudden death, even if there is a transient increase in risk during exercise (3–7). It is therefore insufficient to proceed on data collected only during exercise participation, which is the nature of