LETTER TO THE EDITOR

Morality After Surgery Repair of ASD in Adults


Address: The Great-West Life Assurance Company, PO Box 6000, Winnipeg, Manitoba R3C 3A5, Canada.

Correspondent: Gordon R. Cumming, MD, Vice President and Medical Director.

To the Editor:

While I admire the skill, thought, and work that went into Dr Iacovino’s recent life table analysis,1 I suggest that the calculation of interval mortality to 4 decimal places from a smoothed out curve is of no value for underwriting when there are only 6 deaths in 9 years in 84 patients ranging in age from 41 to 79 years, a population of mixed sex and unknown smoking status, unknown age of death, and a wide range of pathophysiology.

Konstantinides et al2 reported on 9.1 ± 5 years mean follow-up for 62 females and 22 males having surgical repair for atrial septal defect. Most subjects were symptomatic, and the delay in diagnosis to surgical closure to a mean age of 56 years would be considered unusual for the times. There were 6 late deaths, a mortality rate of 7.1%. Using this mortality rate and 60 seconds with insurance tables reveals mortality ratios of about 250% against female nonsmokers, 200% against aggregate females, and lower ratios for males. I would consider it a wasted effort to do anything more with the data available.

Before surgery, 29 subjects had angina, yet those known to have coronary disease were apparently excluded. There was no information whether all subjects had coronary angiography. Twenty-two of the 84 subjects had atrial fibrillation or flutter to start with, 19 developed either arrhythmia in follow-up, 11 required pacemakers, 12 had TIA or stroke in follow-up, only some received warfarin. Their hearts are still large. More will get atrial fibrillation or arrhythmias in the future. Possibly 5 will have small residual atrial defects and will be at risk for paradoxical embolus. Some will have damaged lungs from vascular disease or infection. Others will have considerable impairment of right ventricular function and tricuspid regurgitation.

On the other hand, there would be subjects with near normal heart size, right ventricular function, pulmonary artery pressures, sinus rhythm, a trace only of tricuspid regurgitation, absent comorbidity, and other risk factors. Expected mortality in these subjects should be close to standard, but there is no statistical data to confirm this.

When one considers the 39-year age range, inclusion of both sexes, unknown smoking status, only 84 subjects with only 6 deaths, or follow-up periods ranging from 1 to 20 years, a clinical situation that was unstable in some subjects, wide variation in pathophysiology (rhythm, shunt size, pulmonary artery pressures, treatment programs, associated hypertension, angina, and functional status), it would appear that this is a situation where medical directors need to look into each individual case and come to a clinical judgment as to risk using the 7.1% mortality as a starting point. Even if there was a population of sufficient size and clinical information to al-
low a meaningful life table analysis, the wide spectrum in pathophysiology makes this exercise a wasted effort.

Many of the mortality studies available to medical directors are of limited value for precise underwriting because of inadequate populations and the lack of details required for separating high- and low-risk situations. The presentation of life table analyses may suggest an element of precision that is not justified, and not infrequently, the information has no advantages over a mortality ratio estimated from percent mortality in comparison with insurance tables. This ratio is but a starting point, leaving it to judgment for the fine tuning until better data becomes available.

The surprising thing is that many of these patients do quite well, and I am reminded of a few patients that I have followed for over 30 years with ASD repairs after age 50. Despite fibrillation, large hearts, some even with mechanical mitral valves, some managed to survive to age 80. This humbles the physician who has experience with patients such as this into freely admitting that predicting outcome is but an educated guess.

In the Framingham and Manitoba studies of atrial fibrillation, after factoring all comorbidity problems, the mortality risk ratio was between 1.3 and 1.9 for subjects with atrial fibrillation. With only 84 subjects and 6 deaths in this series, no such analysis was possible.

The main thrust of the report by Konstantinides et al was to compare the results of those who have had surgery to those for whom medical treatment was elected. There was considerable advantage to those having surgery. As most of the patients were quite symptomatic, most cardiology centers would have advised surgery in the majority of patients for whom medical treatment was elected, although this remains a subject for debate. In the future, many of these patients will have their defects occluded by devices inserted at catheterization.

Adults with ASD who are asymptomatic, have shunt ratios of less than 1.7, and have no arrhythmias would be expected to have near normal longevity after repair by either surgery or a catheter device and possibly with no intervention.

Dr Iacovino rightly agonized over choosing a comparative population considering country, demographics, contemporary versus current mortality figures, but in the final analysis for underwriting, company or industry standards such as an ultimate table would be preferred.

I would argue that 6 deaths in 84 patients in 9.1 years is 7.1% mortality and any attempt at a detailed life table analysis is difficult to justify and of no practical underwriting value and is of questionable statistical merit.

G. R. Cumming, MD

REFERENCES