

Caseload Tied to Valve Repair Rate

BY MITCHEL L. ZOLER

FORT LAUDERDALE, FLA. — The number of mitral valve operations performed annually strongly predicted whether a cardiac surgeon tended to carry out mitral valve repair or replacement, according to an analysis of more than 28,000 mitral valve cases in the United States during 2005-2007.

Mitral valve repair is usually preferred over valve replacement, but the new data “show a marked variability in mitral valve repair rates,” Dr. Steven F. Bolling said at the annual meeting of the Society of Thoracic Surgeons. Although factors other than case volume, such as mitral stenosis, endocarditis, race, and gender, also were significantly linked to the valve repair rate, the rate was “most predominantly and heavily influenced by individual surgeon volume of mitral cases,” said Dr. Bolling, professor of surgery and director of the multidisciplinary mitral valve clinic at the University of Michigan, Ann Arbor.

“What the study showed, in thousands of patients, is that the same type of patient can go in [to have a mitral valve fixed], and come out differently depending on who the surgeon is. That’s not right,” Dr. Bolling said in an interview, adding that cardiologists also need to play a role by referring more patients to surgeons who will emphasize repair over replacement.

The crux of the issue is that “for 90% of patients, repair is better,” he said. But instead of showing a 90% repair rate, the study analysis revealed that U.S. surgeons who perform mitral valve surgery on average repaired only 41% of valves, and replaced the others.

The only mitral valves that should not be repaired are the small minority that are heavily calcified, heavily rheumatic, or heavily stenotic, he said. “In general, the garden variety, degenerative mitral valve should be repaired.”

The study reviewed 28,507 mitral valve surgery cases treated during 2005-2007 by any of 1,088 surgeons at 639 U.S. centers who contributed outcomes data to the Society of Thoracic Surgeons national database. The average age of the patients was about 62 years, and surgeons performed a median of 5 cases/year, but the average caseloads ranged from less than 1 case/year to 166 cases/year.

As annual case volume rose above the national median, the repair rate steadily ballooned (see chart). In a risk-adjusted analysis, surgeons who treated 30 cases/year had a repair rate 42% above the rate of those whose median volume was 5 cases/year. Surgeons with 100 cases/year had repair rates nearly four times as high as the comparator rate, and surgeons near the top volume level, at 150 cases/year, had repair rates more than seven times the median rate.

In a risk-adjusted model that accounted for other clinical factors associated with repair rate, the repair rate rose by 15% for every 10 additional mitral cases per year, a significant relationship, Dr. Bolling said.

The analysis also identified factors

linked to significantly lower rates of repair, including mitral stenosis, a surrogate for rheumatic disease, which lowered the repair rate by 91%; active endocarditis, which cut the rate by 79%; need for urgent surgery, which decreased the rate by 42%; and female gender, which reduced the rate by 32%.

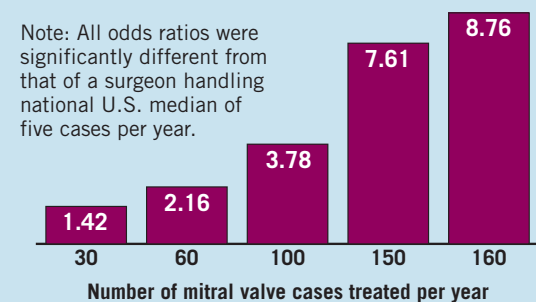
Dr. Bolling suggested several steps that might improve mitral

valve repair rates, including better education of surgeons and cardiologists, increasing the number of referrals to higher-volume surgeons and centers by regionalization, and possibly setting an annual minimum number of mitral cases for a surgeon, such as 25 cases/year.

Dr. Bolling said that he and his associates had no disclosures for this report. ■

Risk-Adjusted Odds Ratios for Mitral Valve Repair Relative to National U.S. Median

Note: All odds ratios were significantly different from that of a surgeon handling national U.S. median of five cases per year.



Source: Dr. Bolling

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Reference: 1. Kushner FG, Hand M, Smith SC Jr, et al. *Circulation*. 2009;120:2271-2306.



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