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doi:10.1016/j.jtcvs.2009.07.005

AORTIC STENOSIS AND STATINS

To the Editor:

The meta-analysis by Takagi and coworkers¹ addresses the effect of statins on aortic stenosis. The authors

conclude that statins do retard the progression of aortic stenosis by retarding the increase in peak aortic jet velocity (PAJV) but not reducing the decrease in aortic valve area (AVA). The recent publication of the Simvastatin and Ezetimibe in Aortic Stenosis (SEAS) study² prompted us to do a meta-analysis on the same question to see whether there is any difference in the summary estimate. During this process, we realized that there were some errors in the calculation of the summary estimate. In brief, the units had been mixed in the calculations.

The data for AVA and PAJV for the Bellamy³ and Mohler⁴ studies were ex-

pressed as percentage change per year, whereas for the rest of the studies, the PAJV was in meters per second per year, and for AVA, it was in square meters per year. It was almost impossible to create a Forrest plot with their data, and the percentage data became huge and far away from the rest of the studies, which became almost invisible dots in the figure. This must have prompted the authors to use the standardized mean difference in figures.

We corrected this mistake by projecting the AVA and PAJV change per year using the baseline values and percentage change data expressed in the original articles (Figures 1 and 2).

Annualised increase in PAJV (Mean Difference)

FIGURE 1. Annualized increase in peak aortic jet velocity (PAJV; mean difference).

Annualised Decrease in AVA (Mean Difference)

FIGURE 2. Annualized decrease in aortic valve area (AVA; mean difference).

Thus, we were able to calculate the mean difference instead of the standardized mean difference of the parameters of interest (PAJV and AVA). Although our results are similar to those of the original meta-analysis, even after including the SEAS study, we have enclosed the correct methodology to arrive at the conclusion.

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Reply to the Editor:

We appreciate the comments by Vedamurthy and associates¹ on our meta-analysis.² The standardized mean difference (SMD) is used as a summary statistic in meta-analyses when the studies all assess the same outcome but measure it in a variety of ways (eg, all studies measure depression, but they use different psychometric scales).³ Vedamurthy and colleagues stated that there were some errors in the calculation of the summary estimate: the units for aortic valve area (AVA) and peak aortic jet velocity (PAJV) had been mixed in the calculations. Similar summary estimates, however, can be commonly found in published meta-analyses. In a meta-analysis of negative pressure wound therapy,⁴ for instance, a change

in wound area per day (in square centimeters), a change in wound area until surgical closure (in square centimeters), and a relative change in wound area until surgical closure or hospital discharge (in percentages) were combined by using the SMD method. Although Vedamurthy and associates¹ projected the AVA and PAJV change per year by using the baseline values and percentage change data expressed in the original articles, precise calculation methods were not mentioned. Was the mean of the absolute change in the AVA or PAJV calculated by multiplying the mean of the baseline value by the mean of the percentage change? It is mathematically obvious, however, that the mean of the absolute change is not equal to the product of the mean of the baseline value by the mean of the percentage change. Furthermore, how was the standard deviation (SD) of the change in the AVA or PAJV? The SD of the absolute change also cannot be equal to the product of the mean of the baseline value by the SD of the percentage change. We do not have the slightest doubt that the SMD method using the absolute and percentage changes themselves expressed in the original article is better than the simple mean difference method using the absolute changes that are complexly calculated by authors of a meta-analysis. However, we would like to know how Vedamurthy and associates calculated the mean or SD of the absolute change.

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TRANSCATHETER HEART VALVE OPTIMAL SIZE

To the Editor:

We read with interest the comments of Zegdi and colleagues¹ on our article entitled "Surgical aortic valve replacement after percutaneous aortic valve implantation: what have we learned?"² The authors raised several important questions about transcatheter heart valve (THV) size selection according to the aortic annular diameter and the issue of oversizing. In the case reported a 23-mm balloon expandable Cribier-Edwards THV had been selected for an aortic annulus measured to 20 mm by using echocardiographic analysis (2 mm of oversizing), which was in agreement with the Edwards company's recommendations. After THV implantation, it clearly appeared that the THV size was too small, explaining the subsequent severe paravalvular leak leading to surgical valve replacement.

Retrospectively, it seems that the transthoracic echocardiographic (TTE) and transesophageal echocardiographic (TEE) measurements definitely underestimated the annular diameter. A 26-mm THV size should have been implanted in this patient, as in any similarly tall male patient. The lack of annular ring in the stented THV device might explain the difference with the bioprosthesis size (23 mm) surgically implanted in this patient. The accuracy of annular size echocardiographic measurement is a technical issue, which has been solved thereafter. This patient was our second case included in the first multicenter European Registry of Endovascular Implantation of Valves in