

## **Severe mitral regurgitation: Early surgery vs "watchful waiting"**

DR CHARANJIT RIHAL: Hi, this is **Dr Chet Rihal**. Today my guests are **Dr Maurice Sarano** and **Dr Rakesh Suri**. Maurice, Rakesh, welcome.

DR RAKESH SURI: Thanks, Chet.

DR MAURICE SARANO: Thank you.

DR CHARANJIT RIHAL: We're going to be talking about a topic of interest to all cardiologists, and that is mitral regurgitation. Maurice, you have been one of the leaders in the field of mitral regurgitation. Update us on what our current thinking has been in terms of timing of operation for mitral regurgitation.

DR MAURICE SARANO: Thank you, Chet. Mitral regurgitation is the most frequent valvular heart disease in the population, and what we're going to be talking about today is organic mitral regurgitation that is due to intrinsic valve disease and essentially degenerative mitral regurgitation, which is the largest proportion of these patients.

Historically, there has been a push, in view of the improving surgical result, for [an] earlier indication [for surgery], to avoid death under medical treatment and the occurrence of left ventricular dysfunction in these patients. However, there is a [lot of] discussion about this early surgery and it is [being] debated currently. It is that debate that we are currently addressing with this study.

To address the debate of early surgery in patients with mitral regurgitation before symptoms, before left ventricular dysfunction, we gathered a group of collaborator investigators, but also clinicians who have brought together a large population of patients with mitral regurgitation due to flail leaflets. In this analysis, we looked at those who were operated promptly—[patients who were] asymptomatic without left ventricular dysfunction—vs those that were followed.

Interestingly, the study shows that there is an equipoise in the mind of cardiologists because almost half of these patients were operated, and a little bit more than half went under medical management.

DR CHARANJIT RIHAL: Maurice, just so I understand, this is a multicenter study that you and Rakesh and other colleges have just recently published.

DR MAURICE SARANO: Absolutely. This is a study of six centers, five in Europe (two in France, two in Italy, one in Belgium) and one in the US, collaborating and gathering their data and their continuous experience with this diagnosis.

DR CHARANJIT RIHAL: How many patients were included?

DR MAURICE SARANO: We included in the overall study more than 2000 patients, and the study of patients who were asymptomatic, without left ventricular dysfunction, involved a little bit more than 1000 patients.

DR CHARANJIT RIHAL: It sounds like a critically important study. Rakesh, I'm going to turn to you. As a cardiovascular surgeon who specializes in mitral-valve disease, why don't you talk us through what the main findings are of the study?

DR RAKESH SURI: Thanks, Chet. So we all know as surgeons and cardiologists working together that we need to get patients to surgery before they have a class 1 indication, in other words, symptoms or left ventricular dysfunction. That's not debated.

What has been debated—and currently is debated—is whether the asymptomatic patient, like you, I, or anybody else in the audience with a murmur and recently quantified to have severe regurgitation, should undergo surgery promptly, within three months.

The study demonstrated that those who did undergo mitral-valve surgery to correct severe regurgitation within three months of the quantified diagnosis were found to have improved long-term survival and, importantly, they were able to live those years free of heart failure with a frequency significantly greater than those who had an initial period of watchful waiting or initial medical management.

DR CHARANJIT RIHAL: So if I understand this correctly, this is severe but asymptomatic mitral regurgitation. Maurice, just recap for us what the definition of severe is for this study.

DR MAURICE SARANO: In this case, it was the diagnosis of flail leaflet, which is the criterion defined by **American Society of Echocardiography** for a specific diagnosis of severe mitral regurgitation. By all other evaluations, 95% of the patients that we had in the study were called severe mitral regurgitation. So we have a uniform diagnosis of severity and a uniform etiological diagnosis.

DR CHARANJIT RIHAL: Early surgery was associated not only with improved symptom status but better survival.

DR RAKESH SURI: Yes, and what's interesting, there's really three take-home points to the manuscript, Chet. The first is the fact that it's the largest study in the world involving asymptomatic patients with severe degenerative mitral regurgitation, who were homogenous in diagnosis and characteristics largely, and that was shown in sort of table 1 and baseline characteristics.

Number two, it is a real-world exposé of management of these patients in current cardiologic practice as distilled by current heart-valve guidelines and surgical practice. In other words, the level of valve repair provided was very high, over 93% on average.

And third, the results showing improved long-term survival with heightened freedom from heart-failure symptoms were coherent by all methods employed. We actually used four methods, the first being an unmatched comparison; the second, propensity match; the third, inverse probability weighting; and finally, Poisson analysis. We had a panel of three statisticians telling us that this was coherent by all methods.

At the end of the day, we were surprised actually with the reproducibility and the striking improvement in survival and freedom from heart failure associated with the mere direction of similar patients to surgery within three months of diagnosis.

DR CHARANJIT RIHAL: So even though this is not a randomized trial, this sophisticated statistical analysis suggests that there is a strong benefit to early surgery. Maurice, do you think that this study will or should influence national guidelines?

DR MAURICE SARANO: I do believe so, because it is what is currently done of comparative effectiveness between therapies that can be used or methods of monitoring, and it used the state-of-the-art of comparison statement. The attitude that we have to decide is whether this should be applied in any center, how should it be applied. And evidently, these are practicing centers, and all centers achieve a high quality of surgery but also a high quality of echocardiographic diagnosis, so that the quality control is the key element in applying this new approach to the treatment of patients with mitral regurgitation.

DR CHARANJIT RIHAL: This has been a most informative discussion. My guests today have been Dr Maurice Sarano and Dr Rakesh Suri. They have described the results of a recently published study, multicenter study, demonstrating that early repair for severe asymptomatic mitral regurgitation was associated with better survival and better functional status over the long run.

Rakesh, Maurice, thank you very much for joining me today.