

Title: ACC 23: Mini-Thoracotomy Vs Sternoctomy for Degenerative Valve Disease: The UK Mini-Mitral Study

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Dr Enoch Akowuah

" - My name is Professor Enoch Akowuah. I'm a cardiac surgeon. I work at South Tees NHS Trust in the UK and I'm a professor of cardiac surgery at Newcastle University in the UK.

What is the importance of the UK Mini Mitral?

There are two ways of doing mitral valve repair surgery. One is through a sternotomy, and one is through a minimally invasive incision. And there's been widespread debate in the cardiac surgery communities about which of those two approaches is best. And patients also want to know this because patients want the minimally invasive approach, but there's always been concerns about the clinical efficacy. So, can you - repair as many valves and can you repair them as well and will they last as long? As well as the safety, because this is a more complex operation. So, there's been controversy about the efficacy and the safety of the two techniques. So that's the question that we're trying to answer. And importantly, most patients internationally have sternotomy about 80% and only a small proportion of minimally invasive surgery. So, this data is really crucial to try and move the dial and increase the number of patients who get access to minimal access surgery and increase the number of surgeons and clinicians who take up the technique.

What were the main considerations regarding the design of this trial?

First, what's the most important question, I guess? And we spend a lot of time speaking to patients about what they wanted from this trial. So, this trial really focuses on patient related outcomes. So, the primary outcome of the trial was recovery of physical function from baseline to 12 weeks after surgery. So how quickly are you able to get back to doing your usual activities? So, the other consideration is that there is a learning curve

for the minimally invasive approach so expertise has to be accounted for. So it's a superiority, randomised controlled trial with expertise-based randomization and patients are randomised to a minimally invasive expert or to a conventional expert. And as I said, the primary outcome is recovery of physical function, but it also measured important secondary outcomes like echo function and quality of life after surgery as well.

What were the baseline characteristics of the patients?

So, all these patients were adults with degenerative mitral regurgitation undergoing mitral valve repair. The mean age was 67, 30% of the participants were women, and that's important because it means we can apply the findings to both genders. 50% of patients were in either NYHA class 3 or class 4, and about 40% have atrial fibrillation prior to surgery. So that gives you a picture of the demographics of the population.

What data did you present at ACC.23?

So, the key findings are that physical function behaves slightly differently in the two groups. So, in patients having conventional surgery there is no difference between physical finding at baseline and at six weeks. So, they essentially haven't begun to obtain the benefits of their surgery. At 12 weeks though, physical function has increased significantly so that they're now much better than at baseline, and that difference, improvement is seen throughout the year. Minimally invasive patients, however, see an immediately significant difference at six weeks. So, at six weeks, they've already increased their physical function scores. It increases again at 12 weeks, and it's maintained throughout the year. The primary outcome, however, is the difference at 12 weeks, the difference between the two groups and that was not significant. So that primary finding suggested at 12 weeks both groups have fully recovered from surgery and have increased their physical function significantly from baseline. Other than physical function, we measured some important secondary outcomes as well. We asked patients to wear an accelerometer for a week at a time to measure their physical activity. And we saw that patients in the mini group had significantly more time doing moderate and vigorous physical activity, and that's running or walking or swimming. And they did more of that than patients in sternotomy group and they also had much better sleep

efficiency. And then finally the other outcome was around length of stay, and patients in the mini group had a shorter length of stay and were more likely to be discharged early after surgery as well.

How should these findings impact clinical practice?

So, I think there a number of take-home messages from this trial. The first is that the repair rate was extremely high, 97%. So take-home message one is, if you're going to have a mitral valve repair, go to an expert because that's really the outcome you want to see. And, we saw excellent durability. 92% of patients had mild or no MR at one year after surgery. Take-home two is that physical function recovers equally in the two groups at 12 weeks and there's no difference. Take-home three is that patients in the mini group appear to have a much better experience leading up to the destination as it were. So, they're able to do more, more quickly, have better sleep efficiency, have better quality of life. And so together, I think the findings should give confidence to both patients and surgeons that mini-MVR is a safe and clinically effective way to treat degenerative MVR, and we hope it will drive uptake of the technique going forward.

What are the next steps?

Well, I think the next steps for us, particularly in the UK is to really encourage more patients to have minimally invasive surgery, and, firstly, and then to have surgery done by experts. We know that in the UK, only about 60% of mitral valves are repaired, but in this trial 97% of valves were repaired, so there's a big gap there. And the big work for us to do is to move patients to the right physicians so that they get the right care.”