

PETER BRADY: Hello. I'm Dr. Peter Brady, electrophysiologist and director of the heart rhythm at the Physiological Monitoring Lab at the Mayo Clinic. Today, on theheart.org, we'll be discussing renal denervation after symplicity hypertension-- three trial results from the recent ACC meeting with my colleague Dr. Rajiv Gulati, cardiologist and associate professor of medicine who specializes in interventional cardiology. Welcome, Rajiv.

RAJIV GULATI: Thanks, Peter.

PETER BRADY: So what went wrong with the trial? Did renal denervation work or was it just not done correctly?

RAJIV GULATI: Well that's the question and I don't think we have all the answers just yet. We've known for a few months that this trial was negative. So just to recap, this was a randomized single-blinded study of percutaneous renal denervation versus a sham control for resistant hypertension, sham control meaning that neither the patient nor the referring physicians knew whether they'd had denervation or not. So it was a really very well-designed study that takes out the criticism of the earlier trials which were open label and of course subject to bias.

And the bottom line was, the primary endpoint of office blood pressure control was negative. There was about a 4-millimeter drop in systolic blood pressure in the denervation and the shade under two, I believe, in the sham. So there was a difference but not statistically significant. So the question really is, and it remains, were all the other trials positive because of bias and open label and now the first well-done control trial shows that the technology doesn't work, or was the technology not sufficient to induce denervation? And that's the focus of the discussion right now.

I guess my thoughts are, it's tough to know still. I think even if we take into account that denervation may not have been perfect, I think it's unlikely that we're going to achieve, even with better technology, the sort of drops in office blood pressure of 30 systolic that were achieved in the earlier studies. The question really out there is whether industry and clinicians alike are going to want to move forward to future iterations of these trials.

PETER BRADY: So, Rajiv, do you think it was a technology issue or an operator issue? What's your insight into that?

RAJIV GULATI: Yeah, no, great question. So clearly there's the possibility of a learning curve. All of the operators-- pretty much all the operators-- were new to the technology-- those who were taking part in this trial. And so potentially-- and also the majority of operators only did one or two procedures in this study, so possibly there's a learning curve issue here, or it could be the technology itself.

One issue with this technology is that there is no readout for procedural success, so whether you're an experienced or a novice operator, you don't know for sure whether you've done denervation. And if there was a technology that gave you a readout, I think that would go a long way to answering the question whether denervation works or not. We do know that with some of the newer devices that industry have developed-- balloon-mounted denervation, coil- or spring-mounted-- you're more likely to get wall apposition with these captors in a guaranteed way and so you can therefore guarantee deliver to the vessel wall, but again, we're limited by knowing whether denervation occurred or not.

PETER BRADY: So clearly we're early on in our experience, both in operator terms and in technology terms. Where do you think we go from here, Rajiv?

RAJIV GULATI: Well my view is that there is enough unanswered questions with this technology and the concept that more trials are necessary. In parallel, of course, with preclinical studies and detailed analysis of the subgroups from simplicity three, it's important to know and recognize that the safety endpoint was achieved so that the procedure itself as it was done appeared not to do harm, and I think from that point, moving forward with newer technology and newer devices, maybe even refining patient selection, is the right way to go here.

PETER BRADY: Well thanks, Rajiv, for those great insights, and thanks to our viewers. We hope that you will continue to check out future content on Mayo Clinic's page at theheart.org on Medscape. Thank you.