**Title: LINC 22: Long-Term Results of Supera in AVF Junta-Anastomosis**

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**Dr Shannon Thomas**

- So my name's Shannon Thomas. I'm a vascular surgeon in Sydney, Australia. And today I'm going to talk about juxta anastomotic stenting using the Supera™ Stent (Abbott).

**Study Background**

So the background for this study is that a lot of patients are who have end-stage kidney failure need to have an access made for dialysis. And we know that the arteriovenous fistula is the gold standard access. And in particular, the guidelines, the KDOQI guidelines state that it should be a forearm fistula or a radial-cephalic fistula. Unfortunately, after you join the vein onto the artery, you can get a stenosis in that region which we call a juxta-anastomotic stenosis. And it's really common and it can recur frequently. And so, many years ago, we tried to solve this problem from an engineering point of view, and that's what led to this concept of using a stent to create the optimal geometry off the join, which then will hopefully give better patency results.

**Study Device**

So the Supera device is a readily available device made by Abbot Vascular. It is not a laser cut nitinol stent like most devices. It's made of six independent wires that are connected to each other to create a helical type shape of stent. The advantage of this is that it resists kinking and torsion, which makes it really ideal for this application in the fistula.

**Study Design and Patient Population**

So it was a single centre retrospective study that we performed basically of consecutive patients at my institution, where we had implanted the Supera stent over about sort of two to four years with various... This was a translational research project, so we started only using this in patients who were the real frequent flyer patients coming in for many, many interventions. And as we started to see positive results, our threshold for intervention dropped. And so we were using it... Now, we use it whenever we see a juxta-anastomotic stenosis because it has been so effective for us.

**Key Results**

So the main results from this study is that we were able to successfully implant the stent in all patients and the patency results then are pretty good. So the primary patency at three years was 34%, but the assisted primary patency was 94%. And that came at a reintervention rate of 0.6 procedures per patient per year. We only had three thrombosis in the study and they were all successfully salvaged. So we didn't lose any of the fistulas. Any patient who had a fistula with the Supera stent in it, as long as they needed it, they were able to keep it and keep their fistula on their forearm. And I think that's very important. I think these patients are very prone to having medical problems. Their fistula is their lifeline. And to some extent, the number of interventions that you have to do to keep that running isn't so important. Preserving it in the long term is very important. And our results show that implantation of Supera allows you to preserve that forearm fistula. And I think the reintervention rate is entirely acceptable.

**Comparison with Other Therapies**

So there are many other existing therapies out there such as drug-coated balloon angioplasty, plain balloon angioplasty, using covered stents in the anastomosis. These are all good options, really. And of course then, there's the open surgical technique where you can proximalize or abandon that join and go somewhere else. And I think open surgery is a bit of a problem when you abandon that fistula because eventually you will run out of spots to make a fistula. So I think there really is scope for this being an endovascular therapy. We actually at one year compared the results we were getting to other endovascular therapies, and none of them were able to demonstrate complete preservation of all of the fistulas. In a lot of the studies, a lot of fistulas were lost. And as I said, I think that's really important that you can maintain the fistula. And I think that's the real advantage of using Supera for this indication.

**Take-Home Messages**

I think the take home message is if you have a patient with a forearm radial-cephalic fistula who is frequently getting stenosis in the juxta-anastomotic segment, and we all have these patients where they're coming back for drug-coated balloon angioplasty every two months, three months, maybe five months. I think these are the patients who are better served by having a Supera stent implanted. That is where for me, I started this research, and I've seen my results improve dramatically. And so, I think if a practitioner is faced with that situation, they should strongly consider using Supera to improve the results for that patient.

**Next Steps**

Yeah, so we've published our three year results, but it's exciting. Dr. Lichtenberg and I think there's four other centres in Germany, are now conducting the SUPER-DIALYSIS-ISS Study. And so, we're going to be getting more data now. Multicenter, there's a lot of learnings that I've experienced in terms of vessel preparation, avoidance of post-dilatation. So they're going to be building all those techniques into their multicenter study. And I'm really looking forward to seeing the results and hopefully seeing more people take up the technique.