- Hello, my name is Dr. Erin Saricilar, and I'm a vascular surgery registrar from Royal North Shore Hospital in Sydney, Australia. And the topic of discussion today is the role of targeted infrapopliteal endovascular angioplasty to treat diabetic foot ulcers using the angiosome model.

Rationale

In our work, we're faced with a significant number of challenging and refractory diabetic foot ulcers, and the treatment of these strong endovascular method has completely revolutionised our management, but we're still faced with very tricky lesions, and sometimes, we're not able to perform the optimum treatment. So we wanted to see whether or not there was in fact an obvious benefit to direct angiosome targeted angioplasty or whether or not alternative treatments could be considered to optimise wound healing and limb salvage.

Study Design and Patient Population

So this was performed as a systematic review, so the population tried to capture vascular ulcers in some capacity, whether it be diabetic, arterial, or venous, and various interventions were corrected for such as endovascular angioplasty and revascularization. We did a search through Ovid MEDLINE, Embase, and Cochrane Reviews, and this produced 345 records, which were then excluded down to 17 studies being included in the final systematic review.

Key Findings

So the most pertinent finding was that the angiosome model definitely did reflect an opportunity for vessel selection when it came to treatment, and so, vascular access and specific strategies could be employed based on the location of the diabetic foot ulcer. Notably, no significant difference was demonstrated between diabetic and non-diabetic limbs based on limb salvage at the one year follow up mark, so this could be applied to other pertinent ulcers as well. When it came to more extensive ulcers, we found that the more angiosomes that were being covered, the more likely the treatment was to technically fail, and if more than five angiosomes were being targeted, it was effectively impossible to heal that ulcer through purely endovascular method. Though, one of the more important findings we found was that if direct angiosomes targeted angioplasty was not able to be performed, it was as effective to do indirect angioplasty, but via collateralization, and that was shown to be as effective as direct angiosome targeted angioplasty.

Impact on Practice

So the main takeaway message from this is that it's important to plan your strategy when it comes to treating these lesions, and so, having a good understanding of the angiosomes that are being covered by a diabetic foot ulcer or any ulcer for that matter is important before going in as infrapopliteal vessels can be very technically challenging, especially if you start getting into crural vessels. So if you are finding a significant challenge to get direct revascularization, you could also consider collateralized revascularization, which has been shown to be as effective.

So it would be very beneficial to perform a randomised control trial in the context of this question. None of the studies included actually were randomised control trials, and they were all observational cohort studies or similar levels of evidence.