

Periprosthetic Joint Infections

New Generation of Treatment Strategies, Antibiotics, and Outcomes



Part 3: Clinic of Hope

00:11

Dr. Jane Caldwell

The rising incidence of PJIs is anticipated to increase due to higher rates of obesity, diabetes, and immunosuppression. Despite new strategies to prevent and treat, such infections continue to be a huge burden for patients, providers, and their institutions. In part three, we'll discuss the establishment of a multidisciplinary practice to prevent and treat PJIs.

We are speaking with Dr. Jessica Seidelman and Dr. William Jiranek, both work at the Duke University School of Medicine in Durham, North Carolina. Dr. Jiranek and Dr. Seidelman, please tell me about the Clinic of Hope. Dr. Jiranek, please go first.

Dr. William Jiranek

I'll lead off because I think it was my, I'm responsible, perhaps I shouldn't have, but Dr. Thorsten Seyler, one of my partners who also does a lot of PJI work and I were sitting in clinic trying to one up each other on who had managed the most difficult infection that day. And I kind of, tongue and cheek said this is the 'clinic of hope', but I think it's actually quite accurate. Most of the people that come with a prosthetic joint infection are depressed. This is the worst thing that could possibly happen. A lot of them have had multiple unsuccessful surgeries and they are truly looking for somebody to give them hope, yes, this can be managed, yes, we have a strategy for this. And that's how it started. And I think we said that we're not going to be successful unless we have a collaboration with our infectious disease colleagues. And that's how we decided, let us experiment with a clinic that includes both the orthopedic surgeon and the infectious disease specialist. And that continues, we continue to try and explore the best way to do that. And I think Dr. Seidelman will tell you we're continuing to evolve. But I think, for the patients, for the 1- 2% of people who are afflicted with an infection, it's an incredibly traumatic thing for them. And to have someplace that's specializing in it, I think, does give them some hope. And so, we're trying to build on that. And the real concept is, as you've said before, multidisciplinary. I have a lot of preconceptions that come from the orthopedic side. Dr. Seidelman has a lot from the ID side. Neither of us are completely right and it's good that we share our impressions and our experience. I think that makes a better product.

03:35

Dr. Jane Caldwell

Can you give us a brief overview of some of the prevention measures that you're using at the Clinic of Hope?

Dr. William Jiranek

Sure. So, we'll often see somebody with a chronic prosthetic joint infection who is also overweight, whose hemoglobin A1c, their glycemic index is markedly elevated, who is on, say for example, they have untreated lymphedema. These are all conditions that we should be treating on the front end, not the back end. I think there was in the past this tendency, you've got a red-hot joint, you need to get to the OR immediately and

get it managed. And that probably started some of the less-than-optimal management techniques that we did. I think there's now a consensus amongst most orthopedic surgeons that identifying the bacteria is very important. And then optimizing the patient who gets referred in and is sitting in the emergency room febrile and with a high glucose that we may be better off awaiting cultures and managing their medical problems before we treat the PJI, whether it's an acute or a chronic. I think we have the luxury of one to two days to get things figured out and to optimize the patient. I think that most PJI surgeries shouldn't be done on Sunday night by a person who's on call and has been managing orthopedic trauma all weekend. So, these are the things that I think we've learned painfully by experience.

And I think the message to the treating physician is it's not a surgical emergency in most cases. So, make sure we're taking good care of the patient, we're optimizing them because the morbidity associated with any surgery for PJI is significant. And particularly if patients have had multiple surgeries, I think there's this tendency to say, well, we'll just wash it out and then we can come back another day. The morbidity of opening up a joint and washing it out is significant. And if we don't treat it completely, the cumulative effect may be negative for the patient. So, I think the message is identify what you're doing, do it in the best possible way you can and trying to do it in the fewest number of surgeries as you can.

06:42

Dr. Jane Caldwell

Dr. Seidelman, do you have any data that points to the effectiveness of this multidisciplinary approach?

Dr. Jessica Seidelman

That's a really good question, Jane. We've been utilizing variations of this clinic model probably since July of 2020. And I think the real challenge has been how do we prove its efficacy in numbers that make sense to folks in our C-suite, right? We've published our experience on our combined ortho IV clinic for PJIs. And we've shown that in these studies, we've improved care coordination, patient outcomes, educational value.

So, at Duke Health, you know, our clinic model resulted in a no-show rate of 5%, which is actually really, really great. I mean, if you look at other clinics, you know, the no show rate is much higher, but what we found is that, you know, if you say you are coming to the same time, same room, and you get two doctors in the room at the same time. It really facilitates multidisciplinary decision-making. And I think patients are really reassured by the fact that, for instance, Bill and I are in the room together. We are having this active conversation in front of the patients and they feel reassured that, my physicians are on the same page as opposed to me saying, oh, well, I think you should have this surgery, but I'm to have to talk to the surgeon or Bill saying, well, I think this is the antibiotic plan, but I have to talk to ID. It just really creates a lot more, I think, confidence in patients. And then the other thing I'll say is, you know, we offer kind of individualized guideline driven care for really challenging patients. And you know, it's one of these things where, where does the name Clinic of Hope come from? It comes from the fact that so many of these patients have been turned away and they are coming to us because we are offering them options. We're offering them hope. I mean, again, when we did a study, on all of our arthroplasty fellows. So not only did we have Bill and I, you know, our ID and Ortho, we actually included folks that were doing arthroplasty fellowship for a long period of time.

And 85% of those fellows felt that this multidisciplinary clinic model really prepared them for PJI management in their clinical practice. And 93 % recommended this experience for future trainees. And it wasn't a lot of clinic. It was a half-day model a week, but they really felt like they got a really good experience in that clinic in and of itself.

So I really think, you know, and there's also a review in the *New England Journal of Medicine* that further supports the consensus that specialized high volume centers, coordinated ortho and ID teams are recommended for PJI management because the approach enables meticulous surgical and antimicrobial planning, optimizes functional outcomes, and is really analogous to multidisciplinary care that we see in oncology. So, I think in summary, all this to say the medical literature demonstrates that combined clinics improve operational efficiency, patient outcomes, training preparedness. And I think the one piece that I really want to work on is the dollar sign amount, because again, going back to kind of what we talked about in the first part, you know, if we can show that we're actually, you know, saving money in terms of readmissions, additional complications, I think that'll make this that much more of a riveting argument to have these clinics.

Dr. Jane Caldwell

Thank you so much for that information. This ends part three. In our next section, Dr. Seidelman and Dr. Jiranek will present PJI Prevention for the High-risk Patient.