Prof. Karl, what was your rationale for conducting a meta-analysis to investigate the clinical performance of implants with the TiUnite surface?

The TiUnite surface was launched over 15 years ago and in that time certainly has set the standard in implant dentistry. It’s one of the major implant surfaces on the market. We felt that it was time to evaluate TiUnite implants in a comprehensive meta-analysis of prospective clinical studies—not with preclinical data, not with retrospective data, not with case reports, but the highest possible quality of evidence.

How did you decide which studies to include in the analysis?

We had strict inclusion criteria. We looked only at prospective clinical studies with at least 20 patients who had received TiUnite implants at the beginning of the study. A minimum of a 1-year postloading follow-up was also required. In terms of reporting, we had to be able to either derive the cumulative survival rate from the paper or calculate the survival rate based on the data given in the paper.

Despite the strict inclusion criteria, the study is thought to be the largest analysis of this kind on a single brand of implants. What was the scale of the data examined?

It’s certainly the largest such study I’ve seen. We reviewed 106 well-documented prospective clinical studies. To have such a high number of primary studies in a single review is something really unique. In total, over 12,000 TiUnite implants were part of the evaluation. This represents a huge database and should be regarded as a real strength for Nobel Biocare, as well as the clinicians using Nobel Biocare implants and their patients. I think it’s really the highest level of evidence we have right now documenting the clinical success of a single implant surface.

What did you set out to discover in all this data?

We did not have any predetermined expectations—that is another strong point of this review in my opinion. Our aim was not to cherry-pick data, but to conduct an unbiased review of the literature.

Another unique feature of the study is that we used implant placement as a baseline. Bone remodeling takes place predominantly between implant placement and abutment connection. In many studies, it’s only at the prosthetic restoration that the clock starts to run, but by then a certain amount of remodeling has already taken place. It’s more honest to go back and report the implant surgery as the baseline and assess the bone levels from then on.

We were able to really look at marginal bone level changes from the beginning, from the surgery, for many, many studies, and also looked into biological complications if they had been reported. Of course, we also looked at periimplantitis and periimplant pathology.

The definition of “periimplantitis” is presently a much-debated topic in dental implantology. How did you define it for the purposes of this paper?

The definition of “periimplantitis” is indeed a hot topic right now. What we did in the paper is not to over- or underestimate periimplantitis. If the primary author referred to “periimplantitis” or if there was periimplant inflammation or periimplant pathology, we counted this as periimplantitis no matter what. We are well aware that these authors were acting on different scales, but if they used the term “periimplantitis” or similar, we did not question it.

What were the key findings of your analysis?

For me, the key finding was that TiUnite is a highly reliable implant surface even in very
challenging situations. Nobel Biocare has a full range of implant designs with the TiUnite surface, and we could not differentiate implant performance between different implant geometries. In the end, the study results demonstrated that it’s a really great surface. It keeps the implant in place, and the longevity is proven. The prevalence of periimplantitis was extremely low. There were no major biological complications and the marginal bone level changes were well within the accepted thresholds for a successful implant.

How can the findings of your analysis now be used to optimize clinical practice?

Clinicians can use the values presented in the paper as a reference. This is the real benefit of such an extensive review. In our own practices, we can only see a limited number of patients. What we have here is an analysis of over 12,000 implants spanning a 15-year period. I would advise clinicians to look at these values and compare them with what they have seen in their practices. Then they can ask themselves where they are in relation to the data and why that might be. If they are not seeing the same success, why is that? The findings are a helpful benchmark for modern practice.

Reference


For more information about the TiUnite surface and its supporting clinical evidence, visit nobelbiocare.com/tiunite.