1-1-2010

Survival Rates of Short-Span Implant-Supported Cantilever Fixed Dental Prostheses

Gary L. Stafford
Marquette University, gary.stafford@marquette.edu

Accepted version. *Evidence-Based Dentistry*, Vol. 11, No. 2 (2010): 50-51. Permalink.

Survival rates of short-span implant-supported cantilever fixed dental prostheses

Gary L. Stafford
School of Dentistry, Department of General Dental Sciences
Marquette University
Milwaukee, WI

Abstracted from

Aglietta M, Siciliano VI, Zwahlen M, et al.

A systematic review of the survival and complication rates of implant supported fixed dental prostheses with cantilever extensions after an observation period of at least 5 years. Clin Oral Implant Res 2009; 20: 441–451

Address for correspondence: Giovanni E Salvi, Department of Periodontology, School of Dental Medicine, University of Bern, Freiburgstrasse 7, CH-3010 Bern, Switzerland. E-mail: giovanni.salvi@zmk.unibe.ch

Commentary:

While tooth-supported cantilevered fixed partial dentures are somewhat controversial in their rates of clinical success, there is consensus that they require more consideration and planning than a conventional fixed partial denture.[1] With the introduction of implant

Evidence-Based Dentistry, Vol. 11, No. 2 (2010): pg. 50-51. DOI.

supported cantilevered prostheses for the completely edentulous arch (i.e. Branemark approach), the cantilever has gained acceptance in implant dentistry.[2] The renewed interest for short-span implant-supported cantilever fixed partial dentures (ICFPD's) resulting from this acceptance of cantilever design in the completely edentulous arch has led to questions about longer term survival rates with ICFPD'S in the partially edentulous patient.

This review sought to analyze survival and complication rates of ICFDP's and in doing so looked at implant and prosthesis survival rates, defining prosthesis survival as the prosthesis remaining in situ without modifications. Complications were considered biological or technical in nature.

The author's study selection process required that a clinical exam be performed at the end of the follow-up period of at least five years with most of the excluded publications being due to the mean observation period being < 5 years or not having any specific data on ICFDP's. Of the five selected studies in this systematic review, only two were specifically designed to test ICFDP's. Drawing definitive conclusions about ICFDP longevity from such a small sample size would be inappropriate, but the outcomes do suggest that the short-span ICFDP represents a predictable treatment option when planned correctly.

The most frequently cited technical complications for ICFDP's were veneer fracture, screw loosening and loss of retention. These findings are corroborated by more recent studies, however it must be emphasized that being mindful of the cantilever length, its functional load and its occlusion will have an impact upon the prosthesis success rate. While these observations hold true for both tooth and implant-supported CFDP's, it has been shown that the mere presence of a cantilever extension does not increase the mechanical/technical risks for implants supporting short-span CFDP's.[3]

With crestal bone loss as a significant indicator of implant health[2], it was encouraging to see that when ICFDP's were compared to implant-supported fixed partial dentures (IFDP's) without

Evidence-Based Dentistry, Vol. 11, No. 2 (2010): pg. 50-51. DOI.

cantilevers, there was only a slight difference in the degree of bone loss. Although it was not statistically significant, two of the five studies that used bone loss as the main indicator of success found that there was more loss around the cantilever extension. Only two of the five publications reported any biological complications and data was only available for peri-implantitis. No data was reported for peri-implant mucositis or soft tissue recession. These disease indicators, certainly important in their own right, should be addressed when looking at implant survival rates. Once again, drawing definitive conclusions from such limited data is problematic.

The authors suggested that in their selected studies there was a considerable variability in outcomes, especially in terms of long-term success rates. This can only lead to the conclusion that even though there is growing evidence that ICFPD's are a viable treatment option, research that is larger in scope will be required before definitive recommendations can be made.

Key Practice Points

1. Conventional end-abutment tooth-supported FPD, solely implant-supported FPD or implant supported single crowns should be the first treatment option. Tooth-implant-supported FPD's, tooth-supported FPD's with cantilever extensions, and resin-bonded fixed reconstructions are to be considered secondary treatment options due to their higher estimated failure rates.
2. Using an ICFPD design will reduce treatment time, is more cost effective, and reduces the risks associated with complex reconstructive surgeries (i.e. sinus grafts, anatomical anomolies, ridge augmentation, etc..).

References

1. Hill, EE. (2009). Decision-making for treatment planning a cantilevered fixed partial denture. Compendium of Continuing Education in Dentistry, 30(9), 580-585.

2. Misch, Carl. (2005). Dental implant prosthetics. St. Louis, MO: Mosby.
3. Salvi, GE., & Bragger, U. (2009). Mechanical and technical risks in implant therapy. The International Journal of Oral & Maxillofacial Implants, 24(supplement), 69-84.

Evidence-Based Dentistry, Vol. 11, No. 2 (2010): pg. 50-51. DOI.