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Study:

Cost-effectiveness of non-surgical peri-implantitis treatments

Listl, S., Frühauf, N., Dannewitz, B., Weis, C., Tu, Y.K., Chang, H.J., Faggion, C.M. Jr.
J. Clin. Periodontol. 2015:42(5); 470-7.

Relevant background to study:

The prevalence of peri-implantitis is increasing and multiple treatment approaches have been considered, including both non-surgical and surgical therapies. Given that high numbers of implants are being placed today, an analysis of the cost-effectiveness of non-surgical treatment is therefore timely. However, it remains unclear whether the effectiveness gained by more expensive non-surgical therapies outweighs the less expensive ones.

Study aims:

The purpose of the presented study was to assess the cost-effectiveness of various alternative approaches for the non-surgical treatment of peri-implantitis.

Methods:

A decision-analytical model was constructed and populated with parameter estimates from recent literature for reductions in pocket probing depth (PPD) in response to eight different treatment alternatives. A micro-costing approach combined with an online expert survey was applied to simulate a decision-making scenario taking place in Germany. Treatment alternatives providing the most advantageous cost/outcome combinations were identified according to net benefit criteria. Uncertainty regarding model input parameters were incorporated via simple and probabilistic sensitivity analysis based on a Monte Carlo simulation.

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Results:

In the base-case scenario, the treatments that offered best value for money were, in descending order: debridement alone, Air-Flow, debridement combined with PerioChip, and debridement combined with local antibiotics. Er:YAG laser monotherapy, Vector TM System, debridement combined with CHX, and photodynamic therapy were less cost-effective. Sensitivity analysis revealed considerable decision uncertainty corresponding with limited evidence about different treatment alternatives for the treatment of peri-implantitis. Furthermore, cost-effectiveness is influenced by the assumed durability of multi-use products and whether or not the treatment time was estimated by an experienced or non-experienced practitioner.

Limitations, conclusions and impact:

Limitations:

- Cost-effectiveness estimates were limited to the German health-care model.
- Time estimates per technique were given by both experienced and non-experienced practitioners.
- Meta-analytical evidence about the clinical effectiveness of various peri-implantitis treatments was limited and was restricted to a follow-up time of only 12 months.
- PPD was the only parameter employed for effectiveness.
- Data were obtained from an online survey with very limited numbers of responders (19.05%).

Conclusions:

Robust treatment recommendations for peri-implantitis require more comprehensive and patient-centred evidence.

Impact:

What can we learn as practitioners?

For non-surgical treatment of peri-implantitis, debridement alone, Air-Flow, debridement combined with PerioChip, or debridement combined with local antibiotics may provide reasonable value for money. However, clinical decision-making in the treatment of peri-implantitis should be guided not only by cost-effectiveness but also by patient preference, clinical conditions, and practitioner experience.