

Systematic treatment of periodontal disease: Advantage of further therapeutic approaches

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The German Institute for Quality and Efficiency in Health Care (IQWiG) investigated the advantages and disadvantages of different treatments of inflammatory disease of the periodontium. The final report is now available. According to the findings, there are now an indication or hints of (greater) benefit for six therapeutic approaches, mostly regarding the outcome "attachment level". In the preliminary report, this had only been the case for two types of treatment. The assessment result is now notably better because additional studies have become available to the Institute, and further analyses were possible.

In the worst case, tooth loss is possible

Periodontal disease is the scientific term for disorders of the tissues surrounding the tooth, called the periodontium. The periodontium consists of the gums (gingiva), the periodontal ligament, cementum and the tooth sockets (dental alveoli), i.e. the sockets in the jaw bone that contain the roots of the teeth and keep them in place.

Periodontitis, one of the most common forms of [periodontal disease](#), is a bacterial inflammation that occurs in the gums, for example, if food residue cannot be removed from the gingival pockets with tooth brushing. Left untreated, this can initially lead to bleeding and pus. In the long term, the periodontium may be damaged, resulting in loosening and eventual loss of teeth.

Periodontitis is a common disease. It is estimated, for example, that about 53 per cent of people aged between 35 and 44 years in Germany have a moderate form of periodontitis.

Variety of therapeutic approaches

Today there is a large variety of [therapeutic approaches](#). Besides mechanical and surgical procedures, methods also include antibiotics, laser therapy, photodynamic interventions or air-polishing systems. These methods are used to clean the gingival pockets, polish the root surfaces and kill or remove bacteria.

Not all these methods are currently covered by German statutory health insurance funds. A prerequisite for reimbursement is that the patients provide an active contribution, i.e. improve their [oral hygiene](#) (tooth brushing, flossing, etc.).

More study results usable

On the one hand, the IQWiG researchers were able to include additional randomized controlled trials (RCTs) in the final report. On the other, they were able to use additional data from studies that had already been included.

This was possible for two reasons: In its literature search for the preliminary report, IQWiG had identified a number of studies investigating the appropriate research question. For many studies however, the results had been presented in the publications in a way that made them unusable for the benefit assessment. This could later be corrected for the final report. The basis for this correction was a statistical factor calculated by a team at the University of Greifswald specifically for this purpose from one of their epidemiological studies.

Analysis of data on the attachment level now possible

In addition, in the oral hearing, the Institute and external experts agreed on a threshold value above which a treatment effect is to be considered as relevant to health. This threshold value allowed the inclusion of results on the outcome "attachment level" from a large number of further studies. Attachment refers to the fixation of the tooth to the jaw. The attachment level describes to what extent the periodontium is intact or destroyed.

Relevant differences in six types of treatment

Conclusive study data showing health-relevant differences in the treatment results were now available for a total of six therapeutic approaches; this had been the case for only two therapeutic approaches in the preliminary report. The Institute had been able to derive a hint for each of these two, indicating a relatively low certainty of conclusions. In the final report, in contrast, IQWiG determined a hint of (greater) benefit for four treatments, and even an indication of (greater) benefit for two other treatments.

Initially, the IQWiG researchers had only been able to assess the outcome "gingivitis" (inflammation of the gums) for most of the studies. Now it was also possible to assess the attachment level for all studies.

Scaling and root planing: indication instead of hint of benefit

The assessment result was better particularly for non-surgical subgingival debridement ("scaling and root planing") compared with no treatment. In scaling and root planing, suitable instruments are used to remove tartar and bacteria from the gingival pockets and plane the root surface. In

view of greater gain in attachment, IQWiG now saw an indication of a benefit for this method; this had been a hint in the preliminary report.

Treatment results were better in combination with systemic antibiotic treatment than with scaling and root planing alone. Again, the attachment level was decisive for granting the indication of greater benefit. No differences between the study groups were detected for topical antibiotics, however.

Surgical interventions had no advantage

Four further comparisons each showed a hint of greater benefit. In these comparisons, laser treatment and a special photodynamic method as well as instructions on oral hygiene were used, mostly in addition to scaling and root planing.

Only surgical pocket elimination as an addition to scaling and root planing resulted in a disadvantage (lesser benefit) than scaling and root planing alone.

Still hardly any data on tooth loss or side effects

The newly available data, from which conclusions on benefit or harm can be derived, also only refer to "gingivitis" and "attachment level". The studies only contained sporadic data on important other criteria, such as tooth loss, side effects of [treatment](#), or quality of life.

And there was still no evidence on structured after-care in the form of instructions on oral hygiene and regular teeth cleaning using special equipment. However, the publication of a probably decisive and with more than 1800 participants relatively large study has been announced for 2018 (IQuaD). The Institute could then conduct a supplementary

assessment of these data.

Constructive use of the commenting procedure

"We are pleased that our appeals had an effect and that study authors and other researchers used the commenting procedure for a constructive input of their expert opinion", says Martina Lietz, dentist and project manager of the report in the Non-Drug Interventions Department. "This cooperation was much appreciated, given that we had received such harsh initial criticism of our preliminary report", she adds. "There is now better evidence overall, even though it is still far from sufficient."

Process of report production

IQWiG published the preliminary results in the form of the preliminary report in January 2017 and interested parties were invited to submit comments. At the end of the commenting procedure, the preliminary report was revised and sent as a final report to the commissioning agency in March 2018. The written comments submitted are published in a separate document at the same time as the [final report](#). The [report](#) was produced in collaboration with external experts.

More information: www.iqwig.de/en/projects-resultopathies.6629.html

Provided by Institute for Quality and Efficiency in Health Care

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