

# CPG Peri-implant infections

Version 1.0 – 24.01.2019

## SUMMARY

The clinical practice guideline on Peri-implant infections covers the following topics:

1. Prevention of peri-implant infections
2. Diagnostics of peri-implant infections
3. Treatment of peri-implant mucositis
4. Treatment of peri-implantitis

The guideline applies to individuals with one or more oral implants. Orthodontic implants do not fall within the scope of the guideline.

## 1. Prevention of peri-implant infections

### Recommendations

#### *Effective methods of preventing (the recurrence of) peri-implant infection*

- Regular check-ups are recommended in order to avoid peri-implant infections, or to be able to treat these in a timely manner.
- Proper follow-up starts immediately after the placement of the implant supported construction(s) in the form of professional oral hygiene instructions.

#### *Recommended frequency of periodic check-ups*

- The determination of a baseline measurement within half a year and preferably within six to eight weeks following the placement of the suprastructure is recommended, once the peri-implant tissue has adapted to the construction. The following parameters are recorded:
  - The depth of the implant pockets.
  - The presence or absence of bleeding and pus following probing with controlled force (0,25N).
  - The state of the definitive suprastructure, to be determined by means of an X-ray.
- In addition to this, the making of an X-ray of the bone level is recommended a year following placement of the suprastructure to determine the degree of physiological bone remodelling.
- It is recommended that the frequency of the follow-up appointments be determined at the time of the base measurement.
- Changes in peri-implant health may give rise to reviewing the follow-up frequency. For healthy peri-implant tissue, a follow-up frequency of at least once a year is recommended.
- Each follow-up appointment starts with updating the patient's case history. It is also important to check whether self-care has been sufficient and if the patient has followed instructions.
- During the clinical examination, the following checks are recommended:
  - The aforementioned parameters that were determined at the time of the base measurement.
  - The presence of dental plaque.
  - Mobility of the implant and suprastructure.
  - The bone level: a follow-up X-ray can be made periodically (every three to six years) in order to compare this to the initial X-ray.
  - The state of the implant supported construction.
- If a clear increase in pocket depth, signs of inflammation and/or suspected mobility is detected between two measurements, an X-ray is recommended.



### Most important considerations

- A high level of oral hygiene and a mouth that is free of inflammation are important starting points for the placement of implants. Prior to the placement of the implant, the patient must be informed that a structured follow-up programme is essential.
- If multiple oral healthcare professionals are involved in the treatment, clear agreements need to be made regarding who will take responsibility for the base measurement and long-term follow-up care. It should also be clear in which cases the patient should be referred back to the dentist/implantologist, respectively the oral and maxillo facial surgeon.

## 2. Diagnosis of peri-implant infections

### Recommendations

*Recommended diagnostic test(s) and method(s) for identification of peri-implant infections (peri-implant mucositis and peri-implantitis)*

- The following diagnostic tests (either individually or combined) are recommended for the identification of peri-implant infections:
  - Probing (with light force of 0,25N) is important for the diagnosis of a peri-implant infection. Absence of bleeding following probing is a good indicator of a stable situation.
  - Measuring the peri-implant pocket depth. The results need to be interpreted in relation to the pocket depth at the base measurement or to previously performed measurements of pocket depth.
  - Assessment of the tone and colour of the peri-implant mucosa. Redness and/or swelling may be an indication of a (slight) peri-implant infection.
  - Check to see if there is any pus. This is cause for strong suspicion of peri-implantitis.
  - Determining the degree of progressive bone loss by comparing two consecutive X-rays. An X-ray directly after, or no longer than a maximum of six to eight weeks after placement of the suprastructure (base measurement), can serve as a starting point for this.
- The following methods tests (either individually or combined) are recommended for the identification of peri-implant infections:
  - Check for the presence of iatrogenic factors.
  - Microbiological testing is not necessary for the detection of peri-implant infections. This kind of testing can however be useful in providing information on the primary cause of the infection.
  - Assessment of risk factors, such as the level of oral hygiene (motivation, physical limitations for self-care), the presence of (periodontal) infections and smoking habits.
  - Check mobility.

### Most important considerations

- A diagnosis of peri-implant mucositis is made if, over a longer period of time, there is bleeding after probing (with a controlled force of 0,25N). If this is seen, on its own or in combination with pus without detectable bone loss. Redness and/or swelling of the peri-implant mucosa may also indicate peri-implant mucositis.
- A diagnosis of peri-implantitis is made if there is an increase in the peri-implant pocket depth in relation to the base measurement, with bleeding resulting from probing and/or pus. If seen in combination with progressive peri-implant bone loss in relation to a previous (base) measurement. At a very advanced stage, a certain degree of mobility of the implant may be discernible.



### 3. Treatment of peri-implant mucositis

#### Recommendations

##### *Recommended treatment for peri-implant mucositis*

- Mechanical cleaning, combined with oral hygiene instructions, is the standard therapy.
- It is advisable that the periodontium of the natural teeth be examined and in case of periodontal inflammation, this should subsequently be treated.
- Evaluation of the effect after non-surgical treatment is recommended. If a positive response to the treatment can be seen (reduction in pocket depth, reduction in bleeding after probing, absence of pus), regular follow-up treatment can be started.
- If the (non-surgical) treatment of peri-implant mucositis fails to yield any effect or if the situation deteriorates, a surgical follow-up treatment will be considered.

#### Most important considerations

- On the basis of literature research, there is no mechanical aid that appears to be the most suitable for supra- and/or submucosal cleansing of the implant surface above bone level.
- The recommendation of antimicrobial/ antiseptic rinses, toothpastes, sprays and gels may be considered.
- The use of antibiotics in addition to mechanical cleansing has no added value.

### 4. Treatment of peri-implantitis

#### Recommendations

##### *Recommended treatment for peri-implantitis*

##### Non-surgical treatment:

- The first phase consists of a non-surgical treatment, which largely correspond with the non-surgical treatment of peri-implant mucositis. In other words, mechanical cleaning first, in combination with instructions for oral hygiene.
- The aim of the mechanical cleaning is to remove as much as possible of the supra- and submucosal biofilm. There are various techniques, none of which come with a specific preference. It is however, true to say that repeated mechanical cleaning works better than a single cleaning session
- Nothing is momentarily known about the added value of systemic antibiotics. If these are considered anyway, this should preferably be done on the basis of relevant microbiological information, such as findings from microbiological research, degree of infection and resistance pattern.

##### Surgical treatment:

- If the first phase of the treatment fails to lead to healing or if the situation deteriorates, a surgical follow-up treatment should be considered.
- The aim of the surgery is to cleanse the implant surface under conditions of full visibility and with total access. That means removal of the any infiltrate present and subsequent cleansing of the implant surface. There is no conclusive evidence at this point in time, that the one method of cleaning leads to better results than the other.
- Evaluation of the treatment results three months post-treatment (or six months following regenerative treatment) is recommended. Where treatment has been successful (no bleeding following probing, no deepened inflamed pockets), regular follow-up care can be started.
- In patients exhibiting insufficient response to the surgical treatment, explantation as therapy should be considered.

## Most important considerations

### Non-surgical treatment:

- Non-surgical treatment of peri-implantitis would in many cases appear to suitable as preparatory therapy for planned surgical treatment. This would appear so due to the reduction in inflammatory parameters that can be expected and the patient's self-care.
- In view of the limited effect on pocket reduction that can be expected (0,0-0,9 mm), a non-surgical treatment as individual treatment would appear to be suitable in particular for cases with early peri-implantitis (pockets of 4-5 mm and 'initial' bone loss).

### Surgical treatment:

- Depending upon the nature and severity of the peri-implantitis, there are three surgical techniques available:
  - Access flap. This involves lifting up a flap of the gum and removing the granulated tissue in order to clean the surface surrounding the implant neck and implant surface under conditions of full visibility.
  - Apically positioned flap with bone recontouring, with or without implantoplasty.
  - Regenerative procedures to rebuild the bone defect using bone/bone substitutes in order to achieve regeneration and (possible) recovery of the angular bone defect.These procedures can be performed in numerous variations, depending upon the application of cleaning methods, the use of chemical cleaning agents for the mouth and the administration of antibiotics.
- All things considered, it is true to say that conclusive recommendations regarding the 'best' therapy, are difficult to formulate since the treatment of peri-implantitis has to be customized per patient. The choice for a specific surgical procedure and certain modalities (decontamination, implantoplasty, augmentation, antibiotics) depends on the nature of the peri-implant pathology, the location of the implant and specific patient factors.
- To date it is as yet unknown whether the prescription of systemic antibiotics yields added value to the surgical treatment of peri-implantitis.
- It would appear useful that the choice for systemic antibiotic be dependent on individual patient factors, such as the results of microbiological tests, the degree of infection and antibiotic resistance. Microbiological tests and the determination of antibiotic resistance can give direction to the choice of medication.

*The comprehensive guideline can be found [here](#). Please note that the comprehensive version of this guideline is in Dutch.*



Flowchart

