Dental Implants

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Introduction

A dental implant is classified as a medical device. The majority of dental implants in use today are made of titanium or titanium alloy with modified surfaces and are inserted into the jawbone as 'artificial roots'. They serve to support and/or stabilize different types of fixed or removable dental prostheses in patients who seek to have missing teeth replaced. Indications range from single to full-arch tooth replacements. Implantable devices can also be used for anchorage in orthodontic tooth movement and allow unidirectional tooth movement without reciprocal action on other teeth. Implantable devices can also be applied extra-orally for anchorage of maxillofacial prostheses.

The majority of dental implants used today are threaded endosseous devices with a cylindrical or tapered shape, which are surgically inserted into the jawbone. Osseointegration refers to the retention of an implant body by direct contact of living bone cells visible at the light microscope level. As such, alveolar bone osseointegrates with the implant without development of a periodontal ligament.

Statement

FDI supports the appropriate use of dental implants in oral healthcare. However, it is essential that every reasonable effort be made to retain teeth before consideration is given to extraction and replacement with dental implants, unless retention of diseased teeth would be detrimental to the patient. A comprehensive clinical and radiological examination, plus good communication, to assess patients' oral and systemic health, treatment needs and desires is critical prior to initiating any treatment. Oral diseases such as periodontitis and caries should be treated and controlled prior to dental implant placement.

Dentists must acquire the necessary training, knowledge, skills and competence in treatment planning, surgical placement and restoration, and maintenance of dental implants prior to performing such procedures. Individualized risk assessment should be undertaken to categorize patients as straightforward, advanced and complicated, thereby matching the degree of difficulty of a given situation to the dentist's level of education, training, experience and skill.

The following should be considered:

- Risk assessment should include consideration of patients' general health status and medication use.
- Use of dental implant systems, components and treatment-related biomaterials with proven scientific documentation, complying with ISO TC106 standards.
- Exclusive use of dental implants and components which have received the necessary regulatory approval of the region or country where they are to be used.
- Use of dental implant systems likely to be sustainable in the long-term.
- Follow scientifically proven guidelines when using dental implants, components and treatment-related biomaterials.
- Microtextured surfaces of dental implants tend to enhance osseointegration.

- Dentists should choose dental implants based on the patient's present clinical situation and the scientific evidence supporting their usage; devices with alternative dimensions can be used in specific situations.
- If risk assessment reveals that a treatment is complicated, the dentist is encouraged to consult with specialized colleagues and/or refer the patient to them, depending on the dentist's own level of education, experience and competence.
- Implant placement must be preceded by appropriate pre-treatment planning including surgical and prosthodontic aspects which requires correct implant positioning in all three dimensions. This is especially important for implant restorations in the aesthetic zone.
- The most frequent problem with dental implant treatment results from malpositioned implants, i.e. implants provoking restorative, biomechanical, biological or aesthetic compromises, leading to an increased risk of long-term complications and decreased patient satisfaction.
- Peri-implant complications including peri-implant mucositis and peri-implantitis can occur when patients do not perform proper oral hygiene, and are more common in patients with a history of periodontitis. All clinicians who treat patients with dental implants must be able to identify these complications in their earliest stage, and provide appropriate treatment using evidence-based approaches.
- Dentists must help patients understand the importance of long-term maintenance of dental implants and implant-supported dental prosthesis, through effective daily oral hygiene, and emphasize control of common risk factors like smoking and regular professional care.
- Dentists must record, and communicate to patients, the characteristics of the dental implant(s) placed, for reasons including maintenance, retrievability and traceability purposes, preferably in compliance with ISO standards.
- FDI National Dental Associations should advocate for the establishment of dental implant registries, and where available dentists should participate in dental implant registries.

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