HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

PREPARATION OF PATIENTS WITH DIABETES MELLITUS FOR DENTAL IMPLANT PLACEMENT

Xalilova Maftunaxon Akmaljon qizi

Clinical resident of Central Asian Medical University

Doi: https://doi.org/10.5281/zenodo.23029067

Abstract: Diabetes mellitus may influence wound healing and osseointegration after dental implant placement. Careful assessment of glycemic control, oral health, systemic condition, and local bone status is therefore essential before surgery. Proper patient preparation and postoperative monitoring can reduce complications and improve implant treatment outcomes.

Keywords: diabetes mellitus, dental implant, glycemic control, osseointegration, patient preparation, implant dentistry.

Dental implant therapy is widely used for the functional and aesthetic rehabilitation of partially or completely edentulous patients. Despite the high predictability of modern implant treatment, successful osseointegration depends on a number of local and systemic factors. Diabetes mellitus is one of the most important systemic conditions that may influence wound healing, bone metabolism, immune response, and the long-term stability of dental implants. Therefore, careful preoperative assessment and preparation of diabetic patients are essential before implant placement.Chronic hyperglycemia can impair microcirculation, reduce leukocyte function, alter collagen synthesis, and negatively affect bone remodeling. These changes may delay soft-tissue healing and osseointegration and may increase the risk of postoperative infection and peri-implant complications. However, diabetes mellitus should not be considered an absolute contraindication to dental implantation. In patients with adequate glycemic control and stable general health, implant treatment can be performed successfully with appropriate planning and clinical monitoring.

The preparation of diabetic patients for implant surgery requires an individualized and multidisciplinary approach. Particular attention should be paid to the type and duration of diabetes, current medication, glycemic control, presence of diabetic complications, periodontal status, oral hygiene, and other systemic risk factors. Laboratory assessment, including glycated hemoglobin (HbA1c), is useful for evaluating long-term glucose control and determining the patient's readiness for elective implant surgery.In addition, the clinician should assess the condition of the oral cavity, eliminate active sources of infection, stabilize periodontal disease, and improve oral hygiene before surgery. Coordination with the patient's physician or endocrinologist may be necessary, especially in patients with poorly controlled diabetes, multiple comorbidities, or complex medical therapy.

Thus, successful dental implantation in patients with diabetes mellitus depends not only on surgical technique but also on thorough preoperative preparation, metabolic control, prevention of infection, and regular postoperative follow-up. A comprehensive approach helps reduce complications and improve the predictability of implant treatment in this group of patients.Preparation of patients with diabetes mellitus for dental implant placement should begin with a comprehensive evaluation of their general and oral health status. The main objective of preoperative preparation is to minimize the

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

influence of hyperglycemia on wound healing, bone regeneration, immune response, and osseointegration. For this reason, implant treatment should be planned only after adequate assessment of metabolic control and stabilization of relevant systemic and local risk factors.

An important stage is the evaluation of glycemic control. Fasting blood glucose and glycated hemoglobin (HbA1c) are commonly used to assess the metabolic status of diabetic patients. HbA1c reflects average blood glucose levels over the previous several months and is therefore especially useful in treatment planning. Patients with well-controlled diabetes generally have more predictable healing and a lower risk of postoperative complications than those with persistent hyperglycemia. When glycemic control is inadequate, elective implant placement should be postponed until the metabolic status is improved in cooperation with the treating physician or endocrinologist.A detailed medical history should include the type and duration of diabetes, current antidiabetic therapy, history of hypoglycemic episodes, cardiovascular disease, renal impairment, neuropathy, retinopathy, and other associated complications. The clinician should also evaluate smoking status, nutritional condition, obesity, and the use of medications that may influence bone metabolism or healing.

Oral examination is equally important. Before implant placement, active periodontal disease, untreated caries, periapical lesions, mucosal inflammation, and other sources of infection should be eliminated. Professional oral hygiene and patient education are necessary to reduce the bacterial load and improve long-term maintenance around implants. Periodontal stabilization is particularly important because patients with diabetes may have an increased susceptibility to inflammatory periodontal and peri-implant conditions.

Radiographic assessment is performed to determine bone quantity and quality at the planned implant site. Cone-beam computed tomography can be used to evaluate alveolar bone dimensions and the relationship of the implant site to important anatomical structures. In patients with diabetes, bone quality and healing capacity should be considered together with local anatomical conditions when selecting implant dimensions and surgical techniques.The timing of surgery should also be planned carefully. It is generally preferable to schedule the procedure when the patient has maintained their usual food intake and antidiabetic medication regimen. Prolonged fasting should be avoided when possible because it may increase the risk of hypoglycemia. The dental team should be prepared to recognize and manage hypoglycemic symptoms during the procedure.

A minimally traumatic surgical approach is desirable in diabetic patients. Careful soft-tissue handling, adequate irrigation, stable implant placement, and preservation of local blood supply may contribute to better healing. Excessive surgical trauma should be avoided because vascular and immune alterations associated with diabetes can delay tissue recovery.Infection prevention is another key component of treatment planning. Strict aseptic technique, appropriate oral hygiene, and close postoperative monitoring are essential. The need for antimicrobial prophylaxis should be evaluated individually according to the patient's systemic condition, local infection risk, and current clinical guidelines rather than applied routinely to all diabetic patients.Postoperative follow-up should be more structured in patients with diabetes. Clinical examination should focus on soft-tissue healing, pain, swelling, signs of infection, implant stability, and plaque control. Maintaining good glycemic control during the healing period is especially important for successful osseointegration.Long-term

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

maintenance is also essential because peri-implant mucositis and peri-implantitis may compromise implant survival. Regular professional cleaning, reinforcement of oral hygiene, periodontal monitoring, and continuous metabolic control should therefore be considered integral parts of implant therapy in diabetic patients.

Dental implantation in patients with diabetes mellitus can be performed successfully when the disease is adequately controlled and the patient is carefully prepared before surgery. The most important factors include assessment of glycemic status, evaluation of systemic complications, elimination of oral infection, stabilization of periodontal health, and precise radiographic planning.Good metabolic control, atraumatic surgical technique, infection prevention, and regular postoperative monitoring improve the conditions for wound healing and osseointegration. In patients with poorly controlled diabetes, elective implant placement should be delayed until the systemic condition has been optimized.Therefore, diabetes mellitus is not an absolute contraindication to dental implant treatment. With individualized planning, interdisciplinary cooperation, and strict long-term maintenance, predictable implant outcomes can be achieved in many diabetic patients.

References:

1. Naujokat H., Kunzendorf B., Wiltfang J. Dental implants and diabetes mellitus-A systematic review. International Journal of Implant Dentistry. 2016;2:5.
2. Oates T. W., Huynh-Ba G., Vargas A., Alexander P., Feine J. A critical review of diabetes, glycemic control, and dental implant therapy. Clinical Oral Implants Research. 2013;24(2):117–127.
3. Chrcanovic B. R., Albrektsson T., Wennerberg A. Diabetes and oral implant failure: a systematic review. Journal of Dental Research. 2014;93(9):859–867.
4. Monje A., Catena A., Borgnakke W. S. Association between diabetes mellitus/hyperglycaemia and peri-implant diseases: systematic review and meta-analysis. Journal of Clinical Periodontology. 2017;44(6):636–648.