

ОБОСНОВАНИЕ ВЫБОРА ОРТОПЕДИЧЕСКИХ КОНСТРУКЦИЙ С ОПОРОЙ НА ДЕНТАЛЬНЫЕ ИМПЛАНТЫ

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Аннотация

В статье представлен комплексный анализ современных подходов к выбору ортопедических конструкций с опорой на дентальные имплантаты. Особое внимание уделено основным клиническим, анатомическим, биомеханическим и эстетическим критериям, определяющим выбор оптимальной конструкции в зависимости от состояния костной ткани, количества отсутствующих зубов, окклюзионных взаимоотношений и индивидуальных особенностей пациента. Рассмотрены показания к применению одиночных коронок, мостовидных протезов с опорой на имплантаты и полных ортопедических конструкций при частичной и полной адентии. Проанализированы факторы, влияющие на функциональную эффективность, эстетические характеристики и долгосрочную стабильность имплантат-опирающихся протезов. Обоснована необходимость индивидуализированного подхода к планированию ортопедического лечения с учётом клинических условий, распределения жевательной нагрузки, состояния периимплантных тканей и потребностей пациента. Полученные положения подчёркивают значимость комплексной диагностики и рационального выбора ортопедической конструкции для повышения предсказуемости результатов дентальной имплантации.

Ключевые слова: дентальная имплантация; имплантат-опирающиеся протезы; ортопедические конструкции; планирование лечения; биомеханика; окклюзия; костная ткань; периимплантные ткани; эстетические результаты.

RATIONALE FOR THE SELECTION OF IMPLANT-SUPPORTED PROSTHETIC CONSTRUCTIONS

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Abstract

The selection of implant-supported prosthetic constructions is an important aspect of modern orthopedic dentistry. The success of implant rehabilitation depends on a comprehensive assessment of the patient's clinical condition, bone quality and quantity, occlusal relationships, aesthetic requirements, and long-term functional expectations. The purpose of this study is to analyze the main clinical factors influencing the choice of implant-supported prosthetic constructions and to substantiate an individualized approach to prosthetic treatment. Particular attention is given to the selection between single crowns, implant-supported bridges, and full-arch prostheses. A systematic assessment of anatomical, biomechanical, aesthetic, and patient-related factors helps improve treatment predictability and the long-term stability of implant-supported restorations.

Keywords: dental implants, implant-supported prostheses, prosthetic rehabilitation, treatment planning, occlusion, biomechanics, osseointegration.

Introduction

Dental implantology has become an essential component of contemporary prosthetic dentistry, providing reliable opportunities for the rehabilitation of patients with partial or complete tooth loss. Implant-supported prosthetic constructions restore masticatory function, improve aesthetics, and contribute to patient satisfaction. However, the clinical outcome depends not only on successful implant placement but also on the appropriate selection and design of the prosthetic construction. The choice of prosthesis should be based on an individualized assessment of the patient's oral condition, anatomical characteristics, functional needs, and expectations. Inappropriate treatment planning may lead to biomechanical complications, peri-implant tissue problems, aesthetic deficiencies, and prosthetic failure.

Aim of the Study

To identify and substantiate the principal clinical and biomechanical criteria for selecting implant-supported prosthetic constructions in patients with partial or complete tooth loss.

Materials and Methods

The study is based on an analysis of contemporary scientific literature concerning implant-supported prosthetic rehabilitation, biomechanical principles, treatment planning, and factors affecting implant and prosthesis survival. The main criteria considered include alveolar bone volume and density, implant position and distribution, occlusal loading, interarch space, soft-tissue conditions, aesthetic demands, and the patient's general oral health. Different types of implant-supported constructions, including single crowns, fixed partial dentures, and full-arch prostheses, are considered in relation to their clinical indications and limitations.

Results and Discussion

The selection of an implant-supported prosthetic construction requires a comprehensive evaluation of several interrelated factors. First, the number and distribution of missing teeth determine the general prosthetic treatment strategy. A single implant-supported crown is generally indicated for an isolated tooth defect when anatomical and clinical conditions are favorable. Implant-supported bridges may be considered for multiple missing teeth, depending on the available bone, implant distribution, occlusal conditions, and the overall treatment plan. In patients with complete edentulism, implant-supported full-arch restorations can provide stable functional rehabilitation when sufficient implant support and appropriate biomechanical conditions are achieved. Second, bone quality and quantity are essential for treatment planning. Adequate bone volume facilitates appropriate implant positioning and supports favorable load distribution. When bone deficiency is present, additional surgical procedures may be considered after careful evaluation of the patient's condition and treatment objectives. Third, biomechanical factors, including occlusal forces, prosthesis span, cantilever length, and parafunctional habits, influence the design and expected durability of the restoration. Proper occlusal planning and a suitable distribution of implants help reduce excessive loading and the risk of technical complications. Fourth, aesthetic considerations are particularly important in the anterior region. Implant position, gingival architecture, emergence profile, and the characteristics of the prosthetic materials should be evaluated to achieve a natural appearance and maintain peri-implant soft-tissue health. Finally, patient-related factors such as oral hygiene, periodontal status, smoking, systemic health, expectations, and ability to attend follow-up appointments should be considered. Maintenance and regular professional monitoring are essential components of long-term implant rehabilitation. The findings of the literature analysis support an individualized approach in which the

prosthetic design is selected according to the patient's anatomical, functional, aesthetic, and behavioral characteristics rather than relying on a uniform treatment protocol.

Conclusion

The rational selection of implant-supported prosthetic constructions is a multidimensional process that requires careful clinical examination, diagnostic planning, and evaluation of biomechanical and aesthetic factors. The choice between single crowns, implant-supported bridges, and full-arch prostheses should be guided by the extent of tooth loss, bone availability, implant distribution, occlusal conditions, soft-tissue characteristics, and patient-specific needs. An individualized treatment plan, combined with appropriate oral hygiene and regular maintenance, can improve the predictability and long-term performance of implant-supported prosthetic rehabilitation.

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