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Problems Of Adaptation To Complete Dentures In Completely Edentulous Patients

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Abstract:
Background*: In everyday dental practice, intolerance to complete dentures represents a frequent challenge in the prosthetic rehabilitation of patients with complete edentulism. The aim of this research was to alleviate patient discomfort and to facilitate a faster and more successful adaptation to the new prosthetic condition.*
Materials and Methods*: Patients who exhibited intolerance to complete dentures were divided into three groups, each comprising ten subjects. Following denture delivery and assessment of the type of intolerance, patients in whom time was a decisive factor in denture acceptance were allocated to the first group, reflecting the need for an adaptation period to a new and unfamiliar condition. The second group included patients who experienced difficulties such as gagging and vomiting during the fabrication of complete dentures. The third group consisted of patients whose completed dentures were shortened in the pharyngeal and lingual regions at their request, while remaining in accordance with fundamental prosthetic principles.*
Results*: Successful outcomes were achieved in all three groups; however, the most rapid and pronounced improvement was observed in the second group. After a 10-day course of pharmacological therapy with metoclopramide and dimenhydrinate, patients in this group demonstrated successful acceptance of the complete dentures.*
Conclusion: *Based on the findings of this study, it can be concluded that an individualized approach is essential in managing intolerance to complete dentures. Accordingly, the therapeutic strategy should be tailored to each patient in order to achieve a more rapid and effective reduction of intolerance to complete dentures.*
Key Words*: complete denture; complete edentulism; intolerance; adaptation.*

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I. Introduction

Tooth loss represents a significant global health issue, with detrimental effects on oral, systemic, and psychological well-being. Individuals with edentulism commonly face challenges such as impaired mastication, weakened facial musculature, resorption of the supporting alveolar bone, reduced bite force and chewing efficiency, gastrointestinal disturbances, and limitations in social interactions or forming close relationships. Prosthetic rehabilitation with dentures can mitigate many of these negative consequences, restoring functional ability and providing a sense of normalcy that facilitates social engagement.[1,2,3,4]

The success of denture therapy depends on multiple factors, including technical procedures, functional performance, esthetic considerations, biological determinants, and psychological aspects. Psychological factors encompass the patient's readiness and attitudes toward denture use, their relationship with and perception of the dentist, cognitive abilities related to learning denture management, and individual personality traits.[5,6]

Dentures function to replace missing teeth, with the denture base providing support while covering the palatal region, or the roof of the mouth. However, this coverage can lead to intolerance in some patients, including nausea and, in severe cases, vomiting. Not all individuals can tolerate palatal coverage, as this area is highly sensitive. Contact with the palatal region may stimulate the gag reflex via activation of the vagus nerve, leading to involuntary gagging.[7]

Prosthetic rehabilitation of patients with complete edentulism represents one of the greatest challenges in dental prosthetics. In these patients, masticatory function is completely impaired, often resulting in significant difficulties with nutrition. Moreover, particularly when edentulism persists over a prolonged period, patients tend to develop harmful habits, such as abnormal tongue positioning and adaptive changes in the tone of the surrounding musculature in response to the new functional conditions. These factors further complicate the prosthetic treatment.[8]

In addition, it must always be considered that patients with complete edentulism frequently experience reduced self-esteem. The absence of the aesthetic function of the teeth leads to feelings of inferiority compared

with dentate individuals. The external facial appearance of completely edentulous patients is altered, often resulting in a so-called aged appearance due to disturbed intermaxillary relationships and a reduced lower facial third. Complete edentulism also affects socialization, as speech function is compromised, causing many patients to withdraw from communication.[9]

Therefore, the clinician should approach patients with complete edentulism with particular care and patience. The therapeutic goal is not only to fabricate complete dentures, but also to assist patients in overcoming functional and psychological difficulties and improving their overall quality of life. This is especially important in patients who experience gagging after the insertion of new dentures. In such cases, treatment does not consist solely of prosthetic fabrication, but also of creating conditions that facilitate patient acceptance of the dentures.[10]

Before achieving comfort with new dentures, patients must undergo a certain adaptation period, the duration of which varies among individuals, typically ranging from 2 to 6 weeks. This adaptation phase is often perceived as stressful and challenging. Consequently, it is advisable for the clinician to inform patients in advance about potential difficulties and discomforts and to provide guidance on how to manage them. When patients are aware of what to expect, they are better able to cope with the transitional period and to learn appropriate handling of the dentures. Patients must learn to speak and eat normally with their dentures, without excessive effort or difficulty, and to accept the prosthesis as a foreign body that will be permanently present in the oral cavity. The best indicator of definitive adaptation and full functional success is achieved when the patient no longer perceives the presence of the denture, is able to eat comfortably, and when the denture is technically sound, having been fabricated with due consideration of its prophylactic effect on the supporting tissues.[11]

The aim of this research was to alleviate patient discomfort and to facilitate a faster and more successful adaptation to the new prosthetic condition.

II. Material And Methods

This study included 30 completely edentulous patients treated at the University Dental Clinical Center "St. Panteleimon" in Skopje. All patients were indicated for complete denture therapy, as alternative prosthetic options were not feasible. The use of dental implants was precluded in some patients due to medical contraindications, including general health conditions or unfavorable local orofacial factors, while in others, despite suitable conditions for implant placement, financial constraints necessitated the selection of conventional complete dentures.

Inclusion Criteria

The primary criterion for determining denture intolerance was the presence of a gag reflex, which prevented normal acceptance of the dentures and negatively affected the therapeutic outcome. Patients exhibiting this type of intolerance were divided into three groups, each comprising ten individuals. Gender and age were deliberately not considered as determining factors, in order to focus on the etiology of intolerance. Prior to classification, all patients were assessed to exclude objective clinical causes of gagging, including: overextended or thickened pharyngeal denture borders, reduced tongue space due to lingual inclination of artificial teeth, decreased vertical dimension of occlusion.

After exclusion of these factors, psychological assessment was performed and patients were classified according to their psychological profiles.

Patient Groups

Group 1

The first group consisted of 10 patients who, despite pronounced intolerance to the new dentures, demonstrated willingness to cooperate and high trust in the clinician. Therapeutic interventions focused on counseling and providing simple guidance to facilitate adaptation. Patients were informed that achieving comfort with the dentures requires an adaptation period. They were advised to moisten the dentures with lukewarm water prior to insertion, reducing the sensation of a foreign object and minimizing gagging and nausea. Patients with excessive salivation were recommended to rinse the mouth with saline solution before denture placement. Additionally, patients were reassured that initial gagging is a common and transient reaction, which typically decreases over time. This approach motivated patients to persist through the adaptation period, with time identified as a critical factor for therapeutic success.

Group 2

The second group included patients whose gag reflex and nausea were evident during the denture fabrication process, complicating treatment. In this group, pharmacological therapy (metoclopramide and dimenhydrinate) was administered at the outset to suppress the gag reflex and facilitate denture acceptance. Patients were also counseled regarding the importance of time in adapting to the new prostheses.

a) b)

Figure 1. a) Reduction of the pharyngeal border of the upper complete denture; b) Medications used for suppression of the gag reflex

Group 3

The third group comprised 10 patients who did not achieve tolerance within the expected adaptation period. At the patients' request, the completed dentures were shortened in the pharyngeal and lingual regions, taking into account the role of the posterior hard and soft palate and the tongue root as primary trigger zones for gagging and vomiting.

All patients were followed for six weeks after denture delivery, with weekly clinical evaluations documenting changes and the degree of adaptation. Successful treatment was defined by complete suppression of the gag reflex and the establishment of functional adaptation, allowing patients to perform daily activities without perceiving the denture as a foreign object in the oral cavity.

III. Result

Following the designated observation period, all three patient groups successfully adapted to their newly fabricated complete dentures. For each group, the mean duration required to achieve functional adaptation was determined, providing insight into the efficiency of the prosthetic rehabilitation process. The results are summarized in Table 1 and depicted graphically in Figure 2, highlighting differences in adaptation times among the groups.

Table 1: Shows мean time required to overcome intolerance to complete dentures, calculated separately for each group and expressed in weeks

	Group 1	Group 2	Group 3
Average time required to overcome denture intolerance (in weeks)	**3,5**	**2**	**4,2**

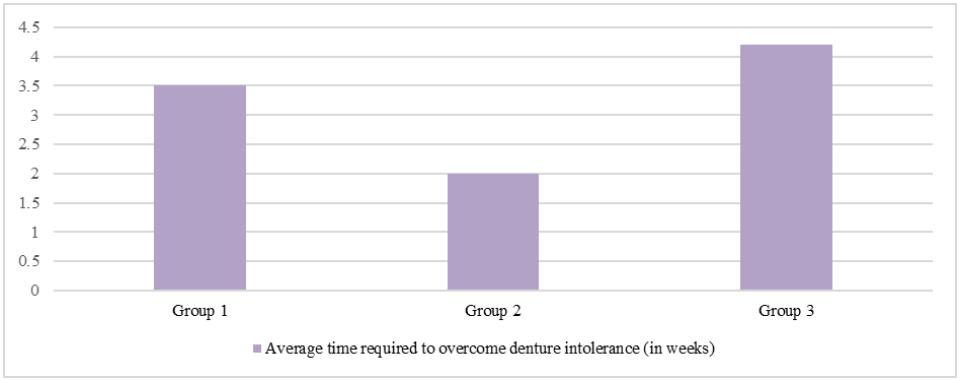

Figure 2. Graphical representation of the results from Table 1. The x-axis depicts the three patient groups, and the y-axis shows the mean time required to overcome denture intolerance.

IV. Discussion

All patients across the three study groups ultimately achieved successful adaptation to complete dentures, despite the implementation of distinct therapeutic approaches for managing denture intolerance. This outcome indicates that no single standardized treatment protocol can be universally applied to all patients presenting with this condition. Rather, the diversity of therapeutic strategies underscores the importance of an individualized, patient-centered approach to clinical management.

A key determinant of therapeutic success in such cases is the clinician's ability to accurately assess the patient and effectively address the psychological barriers associated with acceptance of complete dentures. This process necessitates persistence, patience, and sustained clinician–patient communication. The selection of an appropriate therapeutic strategy should therefore be carefully tailored to the specific psychological and clinical characteristics of each individual patient.

Notably, patients in the third group exhibited the greatest difficulty in overcoming denture intolerance. This group, which underwent prosthodontic management through corrective interventions, demonstrated the longest adaptation period, with a mean duration of 4.2 weeks required to overcome intolerance. Comparable findings have been reported by Kassab et al.[12] Despite the application of the most invasive therapeutic approach, namely denture shortening, improvement in this group occurred at the slowest rate, further emphasizing the pivotal role of psychological factors in treatment outcomes. In this context, Ramsay et al.[13] reported that patients with negative prior dental experiences tend to approach subsequent dental treatment with preconceived bias, which may persist and adversely influence their behavior and response during similar clinical encounters in the future.

V. Conclusion

In cases of manifested intolerance to complete dentures, the implementation of an individualized and carefully tailored therapeutic approach is essential. The clinician should select the therapeutic modality that, based on the specific characteristics of the patient, facilitates more rapid and effective adaptation and promotes acceptance of complete dentures by reducing or eliminating factors contributing to intolerance. This process inherently requires patience, sound professional judgment, and the active participation of the patient throughout the course of treatment.

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