

INVOLVEMENT OF THE ELEMENTS OF THE STOMATOGNATHIC SYSTEM IN THE ORAL REHABILITATION TREATMENT

Alice Murariu, Catalina Holban-Cioloa, Elena Raluca Baciuc*, Laura Elisabeta Checherita*, Nicoleta Ioanid, Norina Consuela Forna

“Grigore T.Popa” University of Medicine and Pharmacy, Faculty of Dental Medicine
Iasi, Romania

*Corresponding Authors: Elena Raluca Baciuc raluca_baciuc2002@yahoo.com,
Laura Elisabeta Checherita checherita.laura@gmail.com

All authors have the same contribution as the first author

ABSTRACT

The prosthetic treatment of edentation must be considered a result of the comparative analysis between the biofunctional advantages and disadvantages entailed by the case. The absent of teeth are one of the common problems encountered in the dental clinics. The extraoral clinical examination show the aspects that individualize the prosthetic treatment plan finding an already existing pathology such as muscle dysfunction, TMJ dysfunctions which limit the opening of the mouth and lateral deviation. The starting point of the disorders, their etiology, the degree of morphological and functional impairment, as well as their evolutionary trend are established by taking into account the dysfunctions of the stomatognathic system. The appearance of some neighboring disorders which can interfere with the clinical manifestations of the dysfunctional syndrome leads to the necessity to put a differential diagnostic of a disease in the surrounding areas.

Keywords: oral rehabilitation, dysfunction, removable prosthesis

Introduction

The prosthetic treatment of edentation must be considered a result of the comparative analysis between the biofunctional advantages and disadvantages entailed by the case. The final treatments depend on the signs and symptoms present on the level of the stomatognathic system. They imply the restoring of the integrity of the dento-alveolar arch, as well as the stopping of the pathological processes that accompany the

medical condition represented by the edentation.

The profilactic treatment is recommended in preventing erosion or demineralization in enamel surface and improving the remineralization process [1].

The treatment by removable partial dentures represents a method of oral rehabilitation, and the need for a treatment with partial prosthesis represents the acceptable option treatment both from the financial point of view and the processing

time. If only a few teeth are absent, these are generally replaced with fixed denture or have no replacement. If more teeth are missing, the likelihood of a removable restoration increases with the number of teeth to be replaced [2-4].

In accordance with patient's wishes, social-economic situation and the morphologic and functional characteristics of the prosthetic field, a therapeutic algorithm is established so that we may have a minimum loss of healthy tissues and the preservation of the existing functions [5]. An incursion into patient's antecedents and the ambition to determine the level of general impairment are capable to establish the general factors favoring stomatognathic dysfunctions [6]. Although there are many general disorders that may speed up the appearance of edentation influencing the rhythm of losing one's odonto-periodontal units and the deterioration of muscular system, TMJ and skeletal morphology. When there are no sufficient data to define the relation between the risks and benefits of an intervention or a drug, the cases where they resort to such intervention or drug are maintained to a minimum, and they prefer the available less invasive and traumatic alternatives showing less risks.

Aim

The aim of the study is to emphasize the signs and symptoms present on the level of the stomatognathic system and the clinical aspects that may influence the prosthetic therapeutic solution. The extraoral clinical examination show the aspects that individualize the prosthetic treatment plan finding an already existing pathology such as muscle dysfunction, TMJ dysfunctions which limit the opening of the mouth, lateral deviation of joint jump as well as facial morphological modifications present on the level of the lower floor of the face.

Material and methods

The present study includes 112 patients, age ranging between 43 and 65 years old out of which 48 male subjects (42.85%) and 64 female subjects (57.14%).

The patients are dealing with pain, functional problems and other difficulties on the level of muscular system, TMJ and skeletal structure. The most common issues are related to limiting the opening of oral cavity, lateral deviations, TMJ or muscle pain.

Results and discussion

The clinical and paraclinical exams represents the basic information that must be obtained before specific and nonspecific treatment planning can occur:

identification of the patient's chief complaint, head and neck examinations,

The starting point of the disorders, their etiology, the degree of morphological and functional impairment, as well as their evolutionary trend are established by taking into account the dysfunctions of the stomatognathic system. The appearance of

TMJ and muscles examination, intraoral examination [7].

some neighboring disorders which can interfere with the clinical manifestations of the dysfunctional syndrome leads to the necessity to put a differential diagnostic of a disease in the surrounding areas. (fig.1)

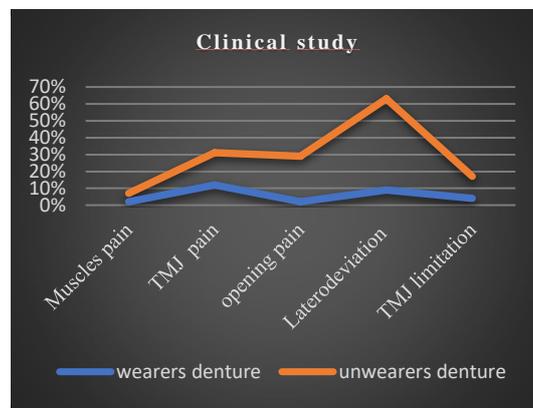


Fig.1. The representation of the signs and symptoms

In the pain category, pain on the level of TMJ were 31% for dentures unworn patients and 12% for dentures wearers patients, mandibular laterodeviation were maximum frequency 63% for dentures unworn patients and 9%

dentures wearers patients. Positive answer to TMJ pain during the opening of mouth, low jaw laterodeviation, had significantly difference in comparison to other problems including muscular pain and limitation of opening mouth.(fig.2, fig.3)



Fig.2. Limitation of opening mouth



Fig.3. Lateral deviation

The pain on the level of the manducator system may occur before or after setting the prosthesis. If pain is felt before setting the prosthesis, it is caused by the lack of stable, multiple dental contacts that diminish the vertical size of the lower floor causing muscle contractions on the lifting muscles. The prophylaxis of the dysfunctions of the stomatognathic system consists in the prophylaxis of the dento-maxillary abnormalities, muscle abnormalities, treatment of coronary odontal lesions and avoidance of erosion,

dental abrasion or the appearance of premature use.

The interrelationship between the elements of the stomatognathic system causes each time the damage of a component of the system which is followed by the impairment of all others or at least part of them. The presence of a mandibular cranial malrelationship accentuates the severity of the dysfunction which results in a difficult recovery of the mandible and sometimes it limits the therapeutic solutions (fig.4).



Fig.4. Mandibulo-cranial malrelationship – the limitation of prosthodontic treatment

The customization of the therapeutic algorithm fully compliant with the variety of clinical cases is an essential condition governed by a set of factors represented by the general status, the clinical and paraclinical aspects of the prosthetic field from which we cannot exclude the contribution of the socioeconomic criterion to the clinical finality.

The presence of a dysfunctional syndrome does not always allow the choice of special prosthesis elements, leading to a compromise between the principles that apply the prosthodontic treatment and the chosen therapeutic solution. The restoring the functions of the stomatognathic system, such as aesthetic, phonetic and mastication functions are aspects that are highly important in the prosthetic treatment and that must be linked to the existing symptomatology.

The clinical situations that require removable or mixed prosthesis take into account the needs of the patients, if he/she had removable prosthesis, the class of edentation, as well as the patient becoming aware of the need to wear prosthesis.

An important but not enough aspect is represented by the stability and maintenance of the partial prosthesis on the prosthetic field. The design and the component of removable partial denture are an important factor for good prognostications [8]. The appearance of the signs and symptoms on the

level of muscles system or the temporomandibular joint imply an incorrect prosthesis where the vertical size of the lower floor is incorrectly determined or the dento-dental reports, vertical, sagittal and transverse do not take into account the morphological characteristics of the clinical case. Stable occlusion is the foundation of long-term clinical success for all prosthetic treatments [9].

The psychological component of prosthetic patients is important because a failing to adapt to such prosthetic treatments has become a topical problem [10].

The restoring of the functions of the stomatognathic system, such as aesthetics, mastication, phonetic should take into account the existing symptomatology [11].

The immediate making of a prosthetic appliance presents numerous advantages such as the protection for the post-extraction wound, the protection of clot, there is no compromise in terms of the functions of the oral cavity such as speaking, deglutition and mastication, there is no period without teeth, and the maintaining of the vertical size of the face [12-14].

Conclusions

It's not easy to approach an edentulous patient because an incorrectly prosthodontic treatment can cause problems of adaptability, instability of the prosthesis, discomfort, which lead to disorders on the level of the TMJ and the muscular system. The presence

of the dysfunctional syndrome does not always allow the choice of some special prosthesis elements which leads to a

compromise between the principles of the prosthodontic treatment and the choice of the therapeutical solution.

Bibliography

1. Vasluianu RI, Forna NC, Baci ER, Zaltariov M, Vasiliu L, Murariu A. In vitro evaluation of enamel surface treated with fluoride after bleaching and etching erosive processes. *Rev Chem* 2018; 69(7): 1714-1717.
2. Zitzmann NU, Hagmann E, Weiger R. What is the prevalence of various types of prosthetic dental restorations in Europe? *Clin Oral Implants Res* 2007;18 Suppl 3:20-33.
3. Murariu A, Forna DA, Manolache F, Forna NC. Assessment of the oral health risk factors in young people. *Romanian Journal of Oral Rehabilitation* 2017; 9(3): 48-54
4. Vasluianu RI, Cioloca CH, Antohe M, Bulancea B, Forna NC. Treatment plan proposals to the patient with partial edentation. *Romanian Journal of Medical and Dental Education* 2019; 8(1), 44-53.
5. Bulancea B, Vasluianu R, Tatarciuc M, Bulancea A, Checherita L, Baci R. Oral rehabilitation methods through the combination of different prosthetic techniques *Romanian Journal of Oral Rehabilitation* 2019; 11(2):266-273.
6. Vasluianu RI, Ungureanu D, Jitaru D, Ioanid AD, Forna NC. Crevicular C-telopeptide and C-propeptide of type I collagen are markers of parodontal disease evolution in diabetic and non-diabetic patients. *Rev Romana Med Lab* 2012; 20 (2): 173-180.
7. Vasluianu RI, Ioanid N, Cioloca-Holban C, Baci RE, Agop Forna D, Murariu A. Strategies of the treatment plan in order to increase the degree of adaptation of the removable dentures. *Romanian Journal of Oral Rehabilitation*, 2019; 11(4): 183-187.
8. Saito M, Notani K, Miura Y, Kawasaki T. Complications and failures in removable partial dentures: a clinical evaluation. *J. Oral Rehabilitation* 2002;29:627-33.
9. Stober T, Bermejob JL, Rues S, Rammelsberg P. Wear of resin denture teeth in partial removable dental prostheses. *Journal of Prosthodontic Research* 2020; 64:85-89.
10. Bosinceanu DN, Silvas MS, Budala DG, Vasluianu RI. Classic complete denture important factor of social integration of elderly patient. *Romanian Journal of Oral Rehabilitation* 2009; 1(1): 4-9.
11. Ikebe K, Nokubi T, Ettinger RL, Namba H, Tanioka N, Iwase K ,et al. Dental status and satisfaction with oral function in a sample of community-dwelling elderly people in Japan. *Special care in dentistry : official publication of the American Association of Hospital Dentists, the Academy of Dentistry for the Handicapped, and the American Society for Geriatric Dentistry* 2002; 22(1):33-40.
12. Phoenix RD, Cagna DR, Defreest CH. *Stewart's Clinical Removable Partial Prosthodontics*. 4th ed. Chicago: Quintessence Publishing Co; 2008. pp. 18–22.
13. Bolat M, Bosinceanu DN, Baci ER, Forna DA, Bosinceanu DG, Forna NC. Partial dentures- successes and failures. *Romanian Journal of Oral Rehabilitation* 2017; 9(4): 93-96.
14. Saveanu CI, Forna NC, Danila I, Barlean L, Balcos C, Danila V, Cheptea C, Golovcencu L, Anistoroaei D. Management attitudes of dentists in dental offices. *Romanian Journal of Oral Rehabilitation* 2018; 10(4): 149-156