OBJECTIVES AND ASSESSMENTS OF ESTHETIC DENTAL TREATMENT- A BASED-EVIDENCE APPROACH

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ABSTRACT

Aim of the study. There are two fundamental considerations regarding successful esthetic dental treatments. This article systematically describes these two considerations: the end points of esthetic dental treatments and assessments of esthetic outcomes, which are also important for acquiring clinical skill in esthetic dental treatments. Material and methods. The end point and assessment of esthetic dental treatment were discussed through literature reviews and clinical practices. Results. Before designing a treatment plan, the end point of dental treatment should be established Conclusions. Practitioners should reach an agreement regarding desired objectives with patients through medical interviews, and continuing improvements and developments of esthetic assessments are required to raise the therapeutic level of esthetic dental treatments.

Key words: *dental esthetics, dental treatment, smile design*

INTRODUCTION

Esthetics is conventionally identified in academic world with the philosophy of art and beauty. [1,2]

Despite the considerable consensus on such definition, the concept of esthetics remains deeply ambiguous, complex and essentially contested. [3,4]

According to Montaigne, „beauty is an excellent recommendation" a statement whose connotation can be fully exemplified in the dental-facial esthetic treatments. [5]

The field of esthetics has emerged from early stages and different species. Moreover, theories on beauty have a very long history. What makes something or someone beautiful; whether beauty is a property of the object/person or rather rests in the eye of the beholder are questions that have occupied thinkers since the ancient Greeks. [6,7]

Currently, in diverse environments, esthetics has been recognized through personal appearance influencing different aspects, such as, job, behavior, self-esteem, and social connection. [8]

Dentistry also has been part of this phenomenon. Nowadays, we can frequently observe new treatments to improve dental esthetics, such as restorations or orthodontics. [9,10]

MATERIAL AND METHODS

This article systematically describes the esthetic objectives and assessments of esthetic outcome, which are important for acquiring skill in esthetic dental treatments.

RESULTS AND DISCUTIONS

With the maxillary anterior teeth, the target of esthetic dental treatment is a restoration that is indistinguishable from the existing teeth and gums. If only a few teeth are missing or defective and the adjacent teeth have an appropriate form and colour to use as a reference, the restoration should imitate them in form, colour, surface texture, translucency.

Characteristics of the gums, such as the level of soft-tissue margin, soft-tissue contour, alveolar process, and soft-tissue colour, should also be considered. [11]

The center of the dental arch matches the center of the facial surface, and the outlines of the teeth and gums are bilaterally symmetrical to the center of dentition [12]. The width to height ratio of the central incisor is ideally 1:0.75–0.8; this proportion is more important for esthetics than is the morphological relationship between the central and lateral incisors [13].

The ideal mesiolingual inclination of the central incisor is slightly distal, the laterals are inclined distally more than central incisors, and canines are more distally [14]. The lateral incisors is 1.0 to 1.5 mm above the level of the central incisors [8], and the incisal edge line of the anterior maxillary teeth approaches the lower lip line during a smile [12,13,14].

The ideal interproximal contact location of the central incisors is higher than the central-lateral or lateral-canine contact location. The interproximal contact of the anterior maxillary teeth should approach the lower lip line during a smile [14]. The ideal soft-tissue margin of the canines is higher than or the same as those of the central incisors, and the soft-tissue margin of the lateral incisors is lower than or the same as those of the central incisors [15].

In 1965, Frush and Fisher [13–15] proposed the concept of dentogenics, in which the selection and arrangement of artificial teeth and the festoon should be based on the sex, personality, and age (SPA factors) of the patient. They recommend a square shape for heavily-muscled men, a rounded shape for women, and teeth showing wear and deep colour for elderly patients. Sex, personality, and age are often taken into consideration when designing removable dentures and are also applied to crowns and fixed partial denture prostheses.

In current society, adolescents have a body and beauty cult and it seems to be an emerge feeling [17]. In this sense, dental esthetics is apparently a concept of growing importance in recent years. For this reason, individuals may consider that having an imperfect smile might be a cause of contempt and discriminatory attitudes from others.

Mass media is present in the lives of adolescents via television, movies, magazines, and advertisements. Consistent with the last statement, a study by Kim and Lennon in 2007 suggests a significant positive relationship between exposure to fashion or beauty magazines and overall appearance dissatisfaction that may lead to low self-esteem. That is why it is very important to satisfy each patient's esthetic demands and to increase satisfaction with esthetic treatments.

The golden proportion has also been used in the practice of esthetic dentistry. For example, the dental anterior arch is considered most beautiful if the proportions of the maxillary lateral incisor width to central incisor width and of the maxillary canine width to lateral incisor width are equal to the golden proportion in the frontal side view. [13-18]

Esthetic dental treatments must take into account the balance of the facial profile as well as esthetic factors of prosthetics and

gums.

Matthews [16] reported that in a well-balanced facial profile, the distances between the hairline and the upper eyebrow margins, the upper eyebrow margins and the tip of the nose, and the tip of the nose and the chin (menton) are nearly identical. Ricketts [17,18] reported that the measurements between the external canthus, subnasale, angulus oris, and menton, which divide the face into three parts, are the golden proportions in an ideal face profile.

The degree to which the maxillary anterior teeth are visible with the lips at rest must be considered when determining their form and position. The standard position of the incisal edge of the maxillary anterior teeth is approximately 2 to 4 mm below the bottom of the upper lip at rest [19,20]. However, it has also been reported that the position of the edge of the maxillary anterior teeth depends on age, sex, and lip tension and may range from 1 to 5 mm below the bottom of the upper lip [20,21].

Another important element in the social impact of esthetics is the presence and formation of stereotypes of stereotypes begins at an early age by observing and analyzing the multitudes of typologies of the individuals we encounter. At the bottom of the stereotype is the social categorization.

With this, people can be categorized (socially, economically, culturally). This concept is also reflected in dento-facial esthetics by introducing individuals with aligned teeth, light colour and proportionality of facial elements as people considered „beautiful". Another concept highlighted in dento-facial esthetics is that promoted by Rosch which states that the „prototype" (in this case referring to the individual with a dental, facial and ideal somatic morphology) is represented by the qualities of the members of the society considered representative, and taken as a role model by a large part of the population. The reasons behind the patients' presence in the dental office are in most cases related to esthetic reconstruction of the dental or facial structures.

The process of assessing treatment outcomes is essential for determining the success of esthetic dentistry treatment. Assessment consists of objective evaluation by the dentist and subjective evaluation by the patient. Objective evaluation is useful for assessing relative outcomes among patients; however, variations can exist between dentists. Subjective evaluation, on the other hand, is less useful for assessing relative outcomes but can be effective for assessing the absolute outcome. This section describes objective and subjective evaluations for assessing esthetic treatment.

The White Esthetic Score (WES) [20] is used to objectively evaluate esthetic treatment outcomes of anterior single-tooth implants in the esthetic zone. A score of 2, 1, or 0 is assigned to all five elements by comparing to the other side tooth and assessed for complete agreement (score 2), incomplete agreement (score 1), or disagreement (score 0).

The Pink Esthetic Score (PES) [21] specifically focuses on the following seven variables for gingival aspects of the implant site: mesial papilla, distal papilla, level of soft-tissue margin, soft-tissue contour, alveolar process, soft-tissue color, and soft-tissue texture. A score of 2, 1, or 0 is also assigned to all seven parameters.

The Psychosocial Impact of Dental Esthetics Questionnaire (PIDAQ), reported by Ulrich Klages et al. supplies very valuable information concerning esthetics after orthodontic treatment. The PIDAQ contains 23 items and four subscales that represent esthetic concerns in three items, psychological impact in six items, social impact in eight items, and dental self-

confidence in six items. [21,22]

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CONCLUSIONS

1. A first step in starting the esthetic dento-facial treatment is the achievement of informed anamnesis and informed consent. The patient's informed consent is of importance, being a legal act, by which the patient agrees to the treatments to be performed
2. After completing the thorough elaboration of the anamnesis, of the treatment plan with all its stages and establishing a good relationship between the doctor and the patient, it is possible to start the treatment. The basic principles of dento-facial esthetics include: the notion of examination in facial esthetics, smile esthetics, dento-facial relations, gingival esthetics and esthetics of dental arches.
3. There are two key considerations for successful esthetic dental treatments. One is that esthetics is a value judgment that is not universal and depends on various factors such as age, race, and district of residence. It may be difficult to understand a patient's goals for esthetic dental treatment. The best way to reach the treatment goal is to understand the end points that we have proposed in this article and reach an agreement with the patient through a medical interview.
4. The other consideration is that the end point and treatment plan is greatly influenced by each patient's wishes and financial resources and the dental team's treatment skills and environment.

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