

Is Age Related to Orthodontic Treatment

Research Article

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Abstract

In recent times, there is an increase in orthodontic patient due to changing trends in aesthetic demand, improved socioeconomic status and more social recognition. It can also be correlated with circulation of knowledge through the cyber space, social media and mass media. With increase in awareness towards orthodontic treatment, nowadays there is increase in adult patient seeking orthodontic treatment. Considering increase in demand for adult orthodontics this paper aims to correlate age and orthodontic treatment.

Keywords: Age; Orthodontic; Treatment; Adult.

Introduction

The phrase “Beautiful is good” which implies that the individual who are physically attractive assumed to possess more social acceptance than unattractive individuals. Many researches have been conducted regarding the same and they conclude that the individual with attractive physical appearance were rated more favourably than unattractive persons on 12 of the 15 characteristics. The results of the same also confirm that a “Beautiful is good” stereotype also exists in health professionals [1]. So, Orthodontics is a branch which deals with aesthetic component and smile in particular which contributes much to the beauty of an individual. Conceivably the most prominent and perceptible benefit of receiving orthodontic treatment in overall dental practice is to get better appearance. It's been proven scientifically that being better and confident in the appearance will help in improving emotional state and mental alertness there by increasing the general health of an individual. In addition to raising the self-esteem of an individual, it also provides an opportunity to improve interpersonal relationship, academic performance and professional success. In recent times, there is an increase in orthodontic patient due to changing trends in aesthetic demand, improved socioeconomic status and more social recognition. It can also be correlated with circulation of knowledge through the cyber space, social media and mass media [2]. With increase in awareness towards ortho-

odontic treatment, nowadays there is increase in adult patient seeking orthodontic treatment. Considering increase in demand for adult orthodontics this paper aims to correlate age and orthodontic treatment.

Factors to consider during orthodontic treatment with different age group

Medical Disorders

Majority of the Orthodontic treatment will be elective procedure and clinician should ensure a satisfactory risk-benefit ratio for each patient. If it is inappropriate to start the treatment, one should not hesitate to postpone until the medical problem diminishes. The usual medical concerns in treating young patients will include acute lymphoblastic leukaemia, haemophilia (Care to be taken during extraction), asthma, cystic fibrosis, epilepsy or seizure disorders, Juvenile idiopathic arthritis, allergies and eating disorders. The medical concerns in adult include infective endocarditis, sickle cell anaemia, liver disorders like hepatitis B C and D, diabetes mellitus, chronic renal failure, osteoporosis, side effect to medications, eating disorders and allergies. The concerns pertaining mainly in adult female patients include pregnancy, anaemia osteoporosis and conditions related to hormonal imbalance [3, 4]. In general, correlation between medical conditions which hin-

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Received: October 19, 2021

Accepted: November 10, 2021

Published: November 19, 2021

Citation: Dr. Suma S, Dr. Chandrashekar BR, Dr Pradeep S. Is Age Related to Orthodontic Treatment. *Int J Dentistry Oral Sci.* 2021;8(11):5039-5041.
doi: <http://dx.doi.org/10.19070/2377-8075-210001015>

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der orthodontic treatment are relatively less, but the prevalence is likely to increase as the age of the patient increases. To conclude as there is increase in risk of medical concerns in adult patient compare to younger patient during orthodontic procedures proper evaluation of medical history and certain precautionary measures are essential in treating such individuals.

Psychological Considerations

The success of any treatment significantly depends on good interaction between patient and doctor. Even orthodontic treatment demands good doctor patient relationship as it is influenced by number of variables. These variables may directly influence the treatment outcome, such variables related to patient compliance include pain perception and discomfort, oral hygiene maintenance, treatment satisfaction, psychological acceptance to treatment and habits [5]. Among these habits and oral hygiene maintenance will be main priority in treating young/ child patient, which further may require psychologist/counselor help in achieving compliance for treatment. On contrary adult patient require more attention for psychological acceptance for the treatment and pain perception. For this orthodontist has to think of esthetic appliance like lingual orthodontics, ceramic brackets and Invisalign as a treatment option. Further the studies have reported that nearly 50% of adult patient who have undergone orthodontic treatment will be dissatisfied with the final outcome of the treatment.

Motivation & Cooperation Of The Patient Towards Treatment

Motivation and cooperation are key factor in the success of orthodontic patient. The patient's internal motivation towards orthodontic treatment is must before the start of treatment. Where as patient's cooperation is critical in timely and successful treatment outcome, as the length of orthodontic treatment is longer. In this regard role of orthodontist is also vital, where adequate information has to be given to the patient as well as to parents in case young patient. Many studies concluded that the parents were more motivated than the children who suppose to under go for treatment. They have also concluded that motivation was more in parents who have undergone previous treatment [6]. Further studies have revealed that the around 20.2% of patients aged 10-14 years and 42.7% of patients older than 18 years were discontinued the orthodontic treatment in various stages [7]. To conclude the orthodontic patient who are internally motivated will have better cooperation towards the treatment.

Biological Differences

The orthodontic treatment mainly is an inflammatory response to the applied force. The inflammatory response involves bone resorption and deposition which happens in the presence of good blood supply. However, many studies have confirmed that the as the age advances there is in decrease in the tissue's blood supply/cell turnover and may lead to the delay in orthodontic tooth movement [8]. With the use of these findings, it can be concluded that younger patient will have sufficient tissue blood supply compare to adult patient which makes lower risk for orthodontically induced iatrogenic apical root resorption. Further we can also observe less amount of root resorption because of partially formed roots with open apices.

Lack Of Growth

The goal of the orthodontic treatment is to achieve functional efficacy, esthetic harmony and structural balance. To achieve this orthodontist will mold patient's face, for this extensive knowledge about growth is very important to diagnose and assess the case and plan the best treatment plan possible for the patient. While treating young patients we have an additional advantage of utilizing growth, whereas in adult patient which will be lacking [9]. It is also been reported that orthodontic treatment changes achieved during growth period will have less chances of relapse. It can be concluded that there is a lack of growth in adult due to this there will be different metabolic activity which in turn causes different orthodontic response and outcome when compared to younger patient.

Periodontal Health Considerations

The sound bone and good periodontal ligament will provide suitable environment to achieve desired orthodontic tooth movement. Tooth loading causes local hypoxia and fluid flow, initiating an aseptic inflammatory cascade culminating in osteoclast resorption in areas of compression and osteoblast deposition in areas of tension. Compression and tension are associated with particular signalling factors, establishing local gradients to regulate remodeling of the bone and periodontal ligament for tooth displacement. Many studies have shown that periodontal tissue destruction is less when compare to adult patients. As the periodontal destruction is more in adult patients, we can observe an alteration in the equilibrium which leads to drifting/tilting or rotation of teeth. To increase the success rate of orthodontic treatment initial periodontal treatment can be undertaken as an adjunctive procedure [10].

Treatment Mechanics

The application of optimum orthodontic force is vibrant in success of orthodontic treatment. The amount of orthodontic force depends on type of tooth movement, age of the patient, bone morphology and periodontal condition. While treating adult patients orthodontic force should as low as possible to achieve controlled tooth movement. In the treatment mechanics it is advisable to use thermo-elastic Nickel Titanium arch wire in initial alignment stage as it applies lesser force which helps in maintaining integrity of periodontal health. The extra oral appliances for the purpose of anchorage reinforcement can be used in younger patient but use of the same is limited in adult patient where acceptance is limited in adult patient. Whereas TAD's can be used in adult patient to reinforce anchorage. When it comes space closure the amount force should very low and continuous in case of adult especially in lower arch when the extraction is historical and the alveolus is necked [7].

Aesthetic Considerations

The adult patients will have lot of expectation in the orthodontic treatment outcome. However, these patients are also conscious in the appliance selection for esthetic purpose. During selection of appliances for adult we should give special consideration to esthetics, for the same we can give option like ceramic brackets,

lingual orthodontic appliance or clear aligners.

Retention & Relapse

The various factor which influences the relapse include age and maturity of the patient, type of orthodontic treatment, type of malocclusion, type of the retainer given and compliance of the patient. As we have discussed in earlier part the changes which is done during growth will have less tendency to relapse, this indicates special care needs to be taken in adult patient regarding retention plan. Majority of the adult patient requires permanent retentive appliance using multi-stranded wires which allows some physiological tooth movement.

Conclusion

Even though the basic treatment mechanics remains common for both adolescent and adult patients. The biological, psychological, esthetic and periodontal aspects need special attention in treating adult patients. Where as in younger patients we have an added advantage of utilizing growth.

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