

MANAGEMENT OF PAIN DUE TO ORTHODONTIC TREATMENT

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Abstract

Experience of pain is common during Orthodontic treatment. Various treatment modalities have been suggested in the literature to reduce Orthodontic pain. These include pharmacological methods of pain control & non pharmacological methods such as Trans electrical nerve stimulation, low level laser therapy, chewing on a plastic wafer, cognitive behavior therapy, gene therapy etc. Orthodontist should use his clinical judgement to select the most appropriate method to control pain.

Introduction

Experience of pain due to various Orthodontic procedures is common. Tayer & Burek in their survey on adult patients found that pain & discomfort is the most discouraging aspect of the treatment.¹ In one study it was shown that 8% of the study population discontinued the treatment because of pain.² Orthodontic pain is perceived by patients due almost all procedures such as separator placement, banding, arch wire ligation, t loop activation, intermaxillary elastics, debonding etc.^{3,4,5.}

Factors affecting pain may include age, gender, emotional state, previous pain experiences, cultural differences, magnitude of force applied etc⁶. When force is applied on a tooth pain arises from periodontal ligament by process of pressure, ischemia & edema. Jones & Chan in an interesting study showed that patients who underwent premolar extraction reported more pain after initial arch wire placement than extraction.⁷

Studies show that pain perceived by a patient is heavily dependent on his psychological wellbeing.⁸ It has been shown that increase in stress increases the frequency & severity of pain.⁹ . Also patients who perceive their malocclusion as severe tolerate pain better.¹⁰

Studies have shown that younger patients feel less pain as compared to older subjects.^{7,11,12}

There are conflicting reports on perception of pain with regards to pain. Some reports have shown that the perception of pain is equal amongst males & females.^{12,13} However some studies have shown that girls experience more pain than boys.¹³

Management

Various methods of management of pain due to orthodontic treatment has been described in the literature.

Corrêa et al¹⁴ conducted a systematic review which revealed that paracetamol could be considered the drug of choice for pain relief in Orthodontics as it interfered less with tooth

movement. Angelopoulou¹⁵ in their meta-analysis showed that ibuprofen appears to lower orthodontic pain compared to placebo at 2hr & 6 hr but not at 24 hr when the pain peaks.

Roth & Thrash¹⁶ assessed Transcutaneous Electrical Nerve Stimulation for its effectiveness in controlling pain due to orthodontic separators. The results showed that in TENS group there was significantly less pain than the control group.

Lobre et al¹⁷ conducted a study to evaluate the relationship between a micropulse vibration device and pain perception during orthodontic treatment. It was found that micropulse vibration device significantly reduced overall pain and pain during biting during a 4 month study period.

Proffit¹⁸ recommended biting of a plastic wafer or a chewing gum to increase the blood flow in the compressed ligament area, thereby blocking the transmission of impulses to nerve receptors.

Hwang and coworkers made the patient chew on a bite block for 10 to 12 minutes after application of arch wires and demonstrated a reduction of pain in 55.4% of the patients.¹⁹ 63% of patients reported less discomfort after chewing Aspergum, a weak analgesic chewing gum with aspirin, after orthodontic mechanotherapy.²⁰

Guram et al²¹ in their randomized control trial showed that low level laser therapy reduced the fixed orthodontic treatment duration & pain experience as compared to the control group.

Wang et al²² in their randomized control trial showed that cognitive behavior therapy was shown to be effective in pain control during the initial stage of Orthodontic treatment. Sandhu & Sandhu²³ have shown that physical activity had significant influence on orthodontic pain perception & analgesic consumption among adolescents. Xu et al²⁴ divided the subjects in music & blank groups & found that music group experienced less pain than the blank group. These behavior modalities focus on reassurance & attention distraction.

Boleta-Ceranto Dde et al in their study found acupuncture to be safe & effective method to reduce orthodontic pain.²⁵

In recent times alleviation of orthodontic pain by TRPV1 based gene therapy can also be considered as an effective alternative.²⁶

Conclusion

Every Orthodontist should try to reduce the pain & discomfort experienced by the patients during Orthodontic treatment as much as possible. Various methods have suggested to reduce pain. The Orthodontist should select the most appropriate method based on his clinical judgement.

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