Control of Post-Operative Pain

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Post-operative pain is defined as pain of any degree that occurs after initiation of root canal treatment [1]. Post-endodontic pain, particularly after initial endodontic therapy, should ideally be eliminated by the therapy; however, analgesics are frequently required to diminish pain. There is a strong relationship between pulp status, microorganisms and postoperative pain, influencing the experience of pain, which may undermine the patient’s confidence in the procedure and the clinician [2]. This event is an undesirable occurrence for both patients and clinicians.

Certain factors may predispose to the development of postoperative pain, such as preoperative pain and retreatment. Although microorganisms are regarded as the primary cause of post-operative pain, inevitable extrusion of the irrigant solution, or debris that contain necrotic tissue, microorganisms, pulpal fragments and dentine particles from the root canal space into the periradicular tissues may also lead to post-operative pain. Flare-up is a condition occurring within a few hours to a few days after a root canal treatment especially in teeth with necrotic pulp [1,2].

The AAE [3], described flare-up as an acute exacerbation of an asymptomatic pulp and or periradicular pathosis after the initiation or continuation of root canal treatment. Some etiological factors have been suggested to play a role in flare-up including preoperative pain, pulp vitality and microbial infection, inadequate debridement and extrusion of debris and filling material into the periradicular area. Studies have reported a widely varying incidence of flare-ups ranging from 1.4% to 16% [4,5].

Post-operative pain after an endodontic procedure is usually associated with the presence of periapical inflammation, which may be the result of over-instrumentation, over-filling and passage of medicine or infected debris into the periapical tissues, damage of the vital neural or pulpal tissues or central sensitization [6]. The issue remains controversial since opinions vary greatly as to the relative risks and benefits of single-visit versus multiple-visit root canal treatment of teeth with necrotic pulp and apical periodontitis.

Periradicular periodontitis is an inflammatory disease comprising host response to infection of the root canal system of the affected tooth [7]. Since the vast majority of endodontic problems are microbial in origin, removal of microorganisms is considered the most important step in root canal therapy [8,9]. Reduction of the microbial load as well as the disruption of biofilms are achieved by a combination of mechanical instrumentation, irrigation with tissue dissolving and microbicidal solutions, and application of antimicrobial medicaments in the root canal between appointments [10].

The majority of studies reported significant reduction of bacteria with an increase in preparation size and irrigation [10,11]. On the other hand, Peters & Wesselin [12] demonstrated that more than 30% of the root canal walls remained untouched even by modern rotary NiTi instrumentation techniques.

The incidence of postoperative pain and particularly of flare-ups was positively associated with the treatment of previously symptomatic teeth with periradicular lesions. Studies have shown that the presence of preoperative pain can significantly increase the probability of postoperative pain [1,2,5]. There are conflicting results with regard to the influence of periradicular bone destruction on the incidence of postoperative pain.

The EndoVac, a negative pressure irrigation technique developed to avoid those adverse effects even when the needle was placed as far apically as the working length. Nielsen and Baumgartner [14], showed that there are significant differences in the cleaning effect at the apical 1 mm level using the EndoVac technique in comparison to a conventional positive pressure technique.

This study gave evidence that a meticulously instrumentation and irrigation performed in a single-visit root canal treatment can be as successful as a two-visit treatment.

REFERENCES


