



PIC QUESTION OF THE WEEK: 11/28/05

Q: Is there any reason to avoid ibuprofen in a teenager currently wearing braces?

A: Over 4.5 million people in the United States currently wear braces or other types of orthodontic appliances. Braces exert force to move teeth into the desired position. Tooth movement is influenced by alveolar bone resorption and synthesis, generally termed bone remodeling. Prostaglandins appear to have a role in bone remodeling and have been found in the periodontal tissue of orthodontically treated teeth. This suggests that an inflammatory response accompanies the placement of braces and similar devices. Prostaglandins are thought to influence tooth movement by altering osteoclastic activity. NSAIDs are commonly used by orthodontic patients to treat braces-related pain. Their benefit is due to their ability to decrease prostaglandin synthesis and peripheral nerve pain receptors. Theoretically, the use of NSAIDs in orthodontic patients could reduce desired tooth movement and their final positioning. Various animal studies have been performed to evaluate the effects of NSAIDs and acetaminophen on tooth movement. NSAIDs appear to slightly inhibit tooth movement, but there is little evidence they completely alter this effect. Prostaglandins are clearly not the only mediators involved in the movement of teeth. NSAIDs, especially their short-term use, do not appear to significantly alter the movement of teeth during orthodontic procedures. Communication with several local dentists revealed that they do not recommend avoiding NSAIDs during these procedures because they believe the benefit of pain relief outweighs the risk of interfering with tooth movement. Another option investigated in animal studies is the use of acetaminophen in orthodontic patients. Acetaminophen does not affect prostaglandin synthesis as do the NSAIDs and can be used as an effective analgesic for braces-related pain. Studies indicate that acetaminophen does not alter the movement of teeth, providing a therapeutic alternative to treatment with NSAIDs. Although it appears acetaminophen may be the preferred analgesic in orthodontic patients, the NSAIDs are still an appropriate alternative for occasional relief of braces-associated pain.

References:

- Burke S, German D. Pharmacological Review. A brief review of pharmaceuticals commonly used in orthodontic practice. <http://www.oc-j.com/2-99/drug.htm> (accessed 2005 Nov 21).
- Walker J, Buring S. NSAID impairment of orthodontic tooth movement. *Ann Pharmacother* 2005; 35: 113-5.

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