3697 Implant Anchored Orthodontics: A Systematic Review of the Literature

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Background: Recent publications suggest a rapid increase in the use of temporary skeletal anchorage in orthodontic practice. The evidence to support this innovative technology is, however, uncharacterized.

Objective: To determine the evidence base for the introduction and use of temporary skeletal anchorage in orthodontic practice.

Methods: A systematic review of the literature was conducted. A PUBMED database search was performed using the Medical Subject Heading (MeSH) terms and/or text words screw OR mini-implants OR anchor OR miniscrews OR plates AND orthodontic anchorage. The initial search identified 31 clinical articles relating to temporary skeletal anchorage. Additionally, three major orthodontic journals were hand-searched, identifying 34 more articles, and 17 articles were further identified from the reference citations in each publication, yielding a total of 77 articles in seven languages from 1945 - August 2004. Each article was reviewed across 5 content areas by two independent readers, and translators were employed when required. Discrepancies were resolved through discussion.

Results: The analysis showed the majority (76%) of papers were case reports with less than 5 subjects. The predominant temporary skeletal anchorage systems used were bone screws (49%), mini-plates (19%), palatal implants (23%), and retromolar implants (8%). Thus far, reports of this new technology address a considerable variety of malocclusions, placement locations, types of implants, waiting periods prior to loading, treatment durations, and direction and magnitude of force application. The reviewed studies generally highlight the success of temporary skeletal anchorage.

Conclusions: The existing literature is insufficient to make valid judgments regarding the safety or efficacy of this innovative treatment approach. Carefully designed, sufficiently powered clinical studies with adequate follow-up are needed to support or refute the safety and efficacy of this novel approach to orthodontic care.

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