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Effectiveness of orthodontic mini-screw implants in adult deep bite patients during incisors intrusion: A systematic review and meta-analysis

Ahmed I. Atalla[1], Mai H. AboulFotouh[2], Fady H. Fahim[3], Manal Y. Foda[4]

Abstract

Introduction: The aim of this systematic review was to compare the effectiveness of temporary anchorage devices (TADs) and conventional intrusive arches (CIA) during incisor intrusion in adult patients with a deep bite and their adverse effects.

Methods: Four electronic databases were queried. In addition, articles were manually searched for using the reference lists of relevant articles, gray literature, and peer-reviewed orthodontic journals. Non-English articles were excluded from the review. Data from the retrieved articles were selected and evaluated by two independent reviewers using a new systematic review software program, DistillerSR. A meta-analysis of raw mean differences was performed.

Results: Initially, we retrieved 9600 articles, but the selection process resulted in 6 articles. The included studies ranged from low to high in quality. Meta-analysis showed that TADs enabled 0.78 mm more upper incisor intrusion than the conventional method (95% CI=0.28 to 1.29). There was no significant anchorage loss difference in the CIA group compared to the TAD group (MD -3.68; 95% CI -7.41 to 0.05). Also, a significant molar tipping of 1.03 degrees was observed in the CIA group (P=0.008) compared to the TAD group (MD -1.03; 95% CI -1.79 to -0.27).

Conclusions: The results of this meta-analysis showed that patients receiving TADs had 0.78 mm greater upper incisor intrusion than patients receiving the conventional treatment. This was statistically significant but not clinically relevant. No clinical difference was found between TADs and the conventional method of anchorage loss.

Key words: Deep bite, intrusion, incisor, and mini-implant.

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Presenting author details

Full name (As per the passport): Ahmed Ibrahim Ismail Atalla
University/Industry/Organization name: Cairo University
Designation: Master student
Country: Egypt
Mobile number: +201096290800
Email: ahmed.atalla@dentistry.cu.edu.eg
Research interest: Orthodontics.