Abstract

Evaluation of efficiency of Guided Tissue Regeneration (GTR) and Guided Bone Regeneration (GBR) in the elderly population: A Systematic Review Study

Introduction: The World Health Organization has reported that the number of adults over 60 has been growing at a faster rate than that of other age groups in several nations, including Iran. Many of these individuals require therapeutic interventions to reconstruct soft and hard tissue due to the changes that the aging process causes to the body. Guided tissue regeneration (GTR) and guided bone regeneration (GBR) are two of these treatments. The aim of this study is to evaluate the efficiency of GTR and GBR treatment in the older population and to gather all pertinent suggestions and concerns.

Methods and Materials: According to the PRISMA[1] statement, this systematic review was conducted. The research topic was first developed using the PICO[2] model, and then keywords pertinent to each section were chosen in order to discover publications for this systematic review. Research question: "What is the efficiency of GTR and GBR treatment in the elderly?", Population: elderly (people over 60 years old), Intervention: treatment of GTR and GBR, Outcome: efficiency of GTR and GBR treatment. A systematic search was conducted in the PubMed, Scopus, Web of Science, and Cochrane databases until the end of December 2021, with an English-language restriction. The study comprised non-in-vitro and non-ex-vivo studies (excluding case report and case series studies) that examined the clinical treatment of GBR and GTR in patients over 60 years old and met the inclusion and exclusion criteria.

Results: 9301 articles were found through manual search and valid database searches. After screening the titles and abstracts of the papers, 201 articles' full texts were studied, and 26 of them were chosen to be included in our study. The articles were divided into the GBR and GTR general categories. Furthermore, the GBR publications were split into three subgroups: conventional GBR, bone block, and sinus augmentation. According to the GTR group studies, the age of the patients had no significant effect on the changes in CAL[3] and alveolar bone gain after GTR treatment in the majority of these studies. Overall, GBR studies have revealed that there is no significant correlation between age and the amount of change in MBL[4], implant survival rate, bone volume changes, probing depth, and other periodontal parameters changes following GBR treatment. Among the results of the studies, a controversy has been observed between the relationship of age and complications after surgery.

Conclusion: In general, GBR and GTR therapies have had acceptable success among the elderly, with little difference in treatment results between the elderly and younger people. Age should not be regarded a risk factor in regeneration treatments, particularly GBR and GTR.

[1] PRISMA: Preferred Reporting Items for Systematic Review and Meta-Analyses
[2] PICO: Population/ Intervention/ Comparison/ Outcome
[3] CAL: Clinical attachment level
[4] MBL: marginal bone level

Keywords: elderly patients, guided tissue regeneration, guided bone regeneration, systematic review