

INTRODUCTION

Periapical surgery includes a group of surgical techniques whose objectives are: eliminate a persistent periapical lesion, clean the apex of the tooth and facilitate access to the apical end of the root canal that will be sealed by retrograde obturation, thus preserving the tooth involved. The use of antimicrobials during these procedures is of great importance, as they are essential for the prevention and treatment of sepsis in the surgical area. The EPX nanomolecule contains non-toxic, biocompatible and antiseptic fortified chitosan with silver and copper nanoparticles that inhibits the growth of bacteria and fungi. Therefore, this study was conducted to evaluate the safety and antimicrobial pharmacodynamics of this topical nanomedicine drug in periapical surgery.

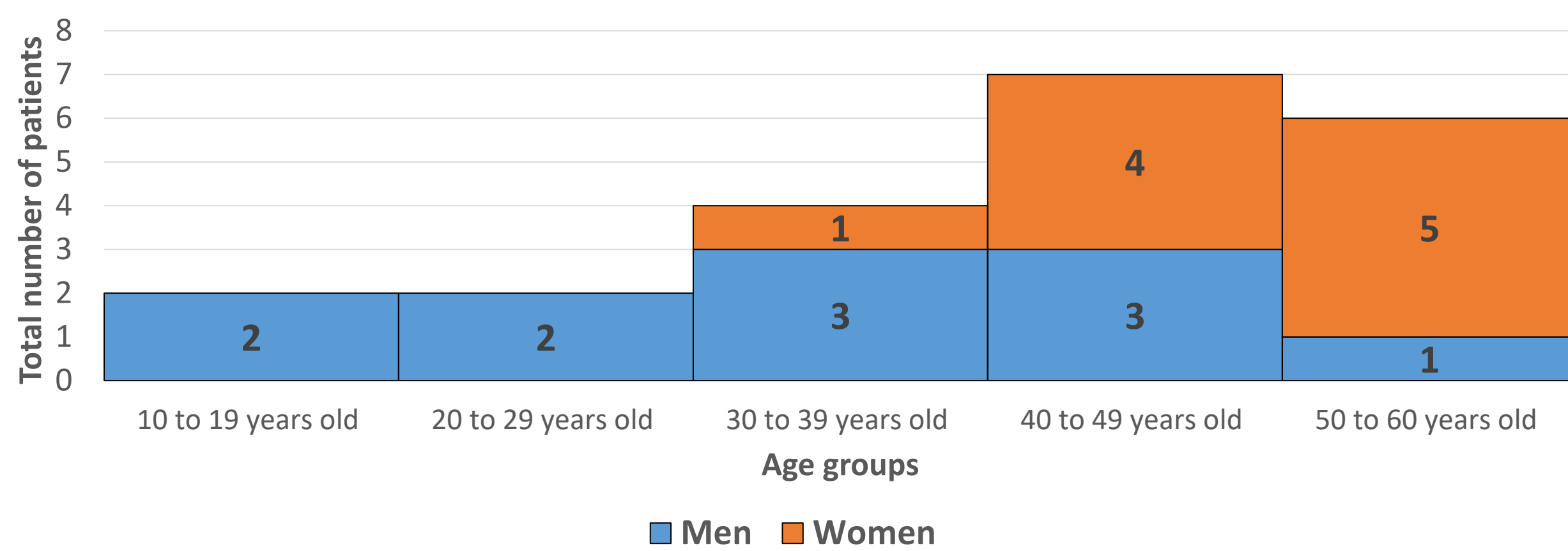
METHODS & MATERIAL

An experimental study, phase I clinical trial, was carried out in a sample of 21 patients with clinical and radiographic diagnosis of chronic periapical disease in need of surgical treatment, who were treated at the School of Dentistry Mexicali, Autonomous University of Baja California, Mexico, from January 2021 to June 2022. None of them had any systemic risk and all of them underwent periapical surgery treatment with topical application of the EPX nanomolecule, in its pharmaceutical form of Periosan Gel, with the consent of the patients and under the multidisciplinary care of three specialists: Oral and Maxillofacial Surgery, Endodontics and Pharmacology.



RESULTS

Figure 1: Distribution of patients according to age groups and sex (n=21).



Case report 1: Topic use of Periosan Gel in periapical surgery.



Case report 2: Application of Periosan Gel in apicoectomy with bone grafting.



Figure 2: Presence of post-surgical inflammation in the operated periapical area (n=21).

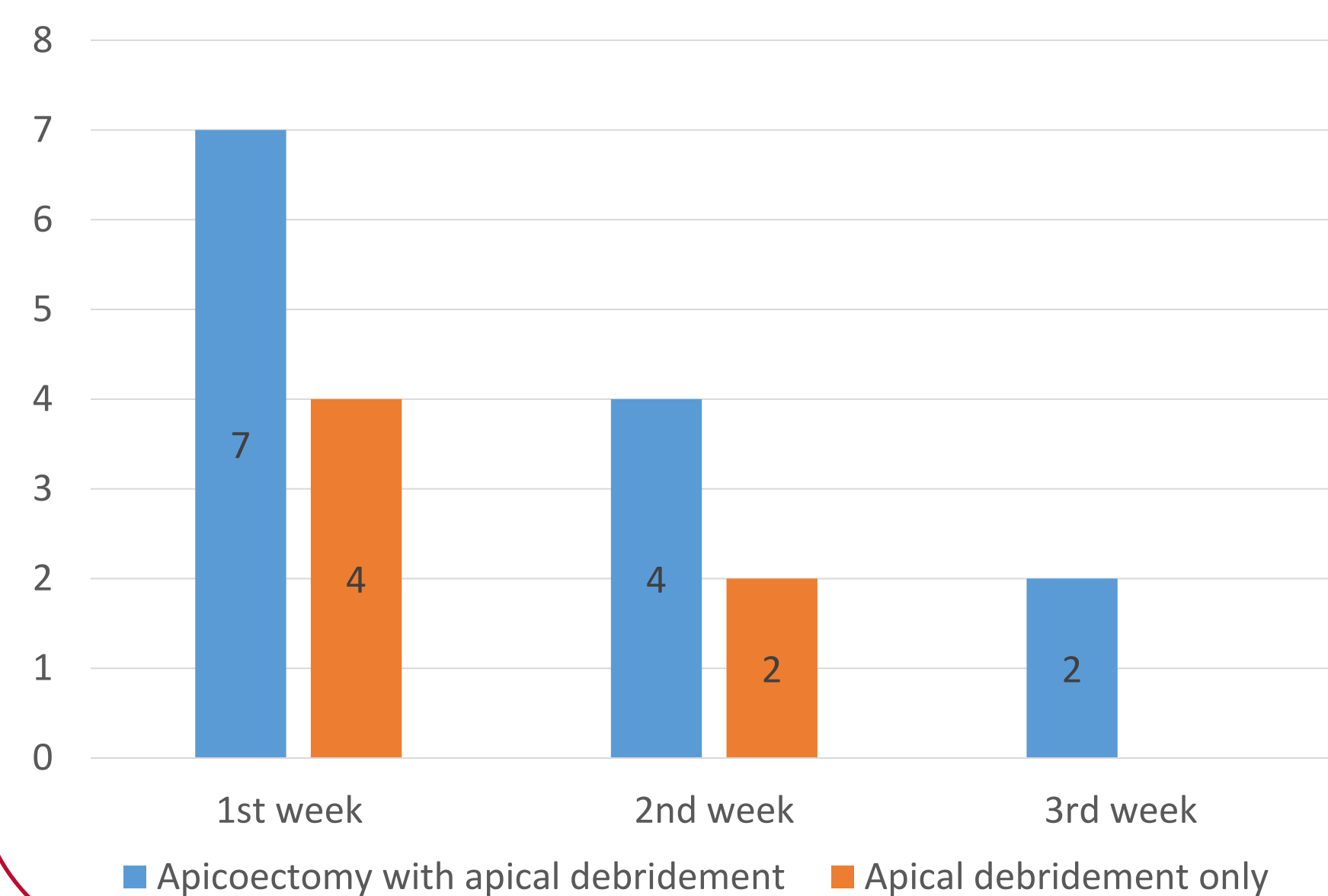
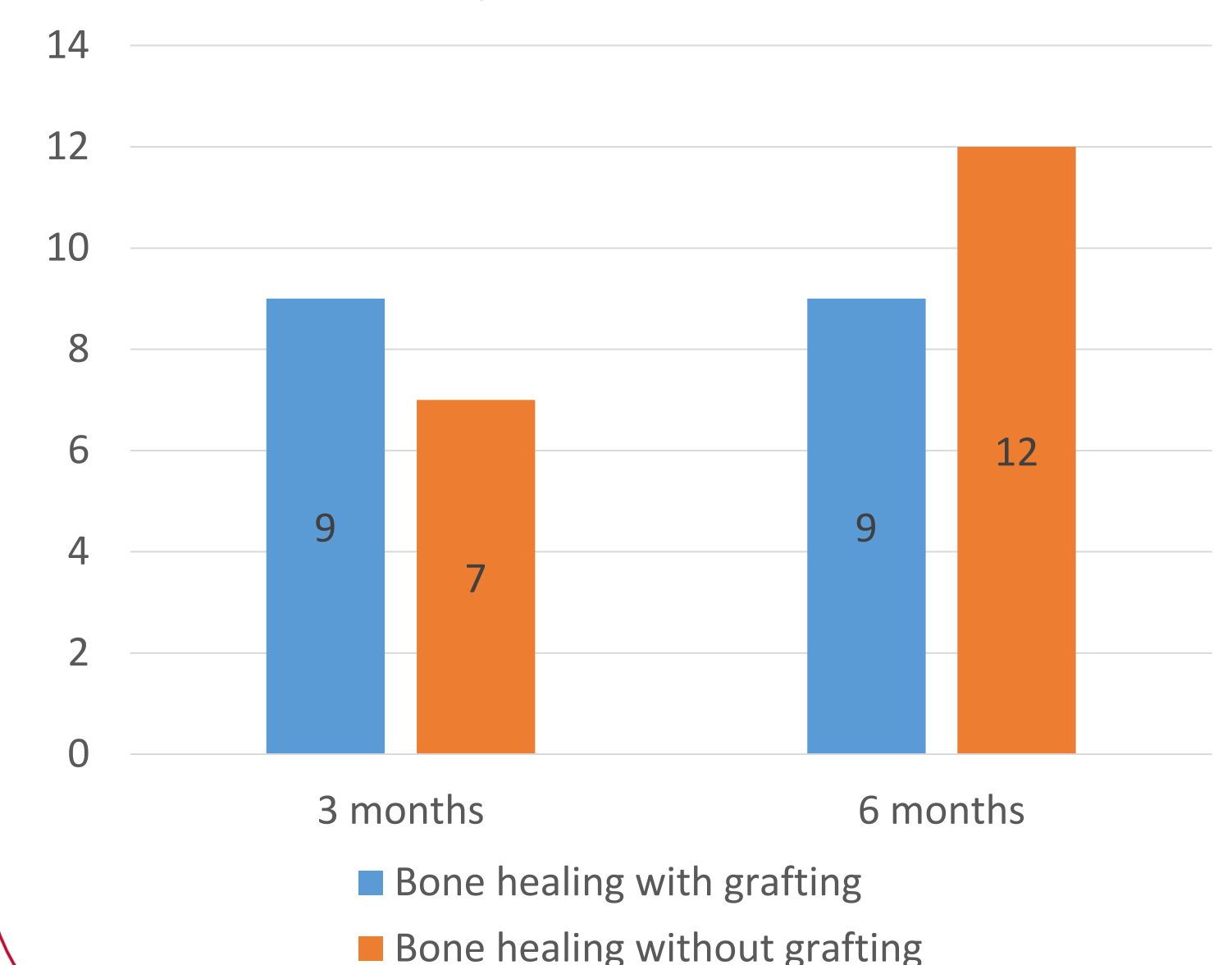


Figure 3: Radiographic follow-up of operated patients (n=21).



CONCLUSION

All patients had good immediate evolution, with signs and symptoms within normal parameters. Radiographic follow-up was favorable, for most patients with signs of bone regeneration and no recurrent septic complications. No adverse reactions were reported for the use of EPX nanomolecule in the form of a transoperative gel and doses were standardized in proportion to the size of the periapical lesion. Surgical wound healing was excellent in all patients, even in cases where EPX nanomolecule combined with granulated hydroxyapatite was used as a xenograft.

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