

Original Article | [Published: 29 August 2020](#)

“Comparative study of conventional anesthesia technique versus computerized system anesthesia: a randomized clinical trial”

[S. Berrendero](#)[✉], [O. Hriptulova](#), [M. P. Salido](#), [F. Martínez-Rus](#) & [G. Pradíes](#)

[Clinical Oral Investigations](#) (2020)

85 Accesses | **1** Altmetric | [Metrics](#)

Abstract

Objective

The aim of the present study was to compare in terms of pain perception the use of conventional anesthesia and a computerized system.

Materials and methods

Forty patients in need for extractions, dental restorative, or periodontal treatment bilaterally, were selected. Each patient served as his/her own control being subjected to two anesthesia techniques: conventional and electronically controlled anesthesia with Calaject® (Rønvig Dental MFG, Daugaard, Denmark). Each patient received both treatments in a blind way 1 week apart. The order was previously randomized. After performing the anesthesia (upper dental nerve, palatal posterior nerve, or inferior alveolar nerve), the patients evaluated their pain sensation with a visual analogue scale (VAS) (0–10). After treatment, the patients were asked about the presence of pain during the procedure. Finally, the patients selected their preference between the conventional

and electronic anesthesia technique. Differences in assessment of pain's injection were analyzed using the Wilcoxon test and the Kruskal-Wallis test ($\alpha = 0.05$).

Results

The mean general pain experienced was 3.73 (1.55 SD) for the conventional anesthesia, and 1.95 (0.53 SD) for computerized anesthesia. Statistical differences ($p < 0.05$) were found. There was no difference between the treatments (p value = 0.061). Most patients did not feel any pain during the treatment. Finally, 92.5% of the patients preferred the electronic system.

Conclusions

Computerized anesthesia system produces significantly less pain compared with a conventional anesthesia syringe. Although both obtained sufficient anesthetic depth to perform treatments, the majority of patients chose electronic anesthesia as the most satisfactory.

Clinical relevance

Computerized anesthesia devices are valid and more comfortable alternative to conventional anesthesia.