

Moscow State University of Medicine and Dentistry named after A.I. Evdokimov



Department of anesthesia in dentistry

Study of Impacts of Local Anesthesia on Hemomicrocirculation of Teeth Pulp.

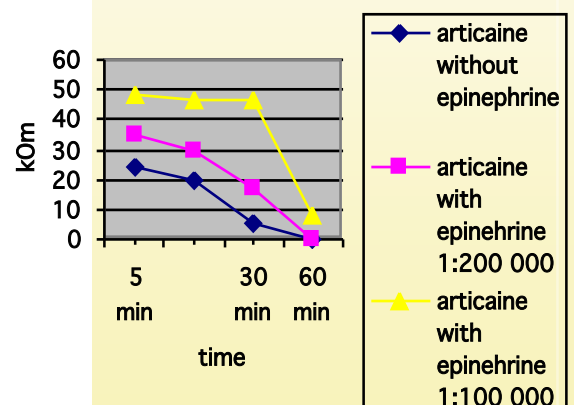
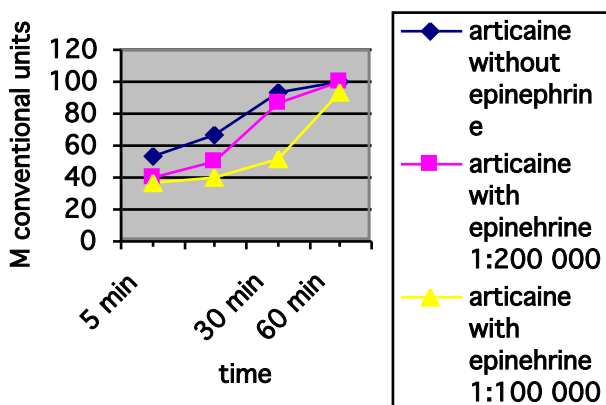
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Background: The main requirement for local anaesthesia during tooth treatment is deepness and time of anaesthesia and also high degree of safety defined of tone of peripheral vessels of pulp.

Aim: study of impact of 4% Articainum with a different content of epinephrine on hemomicrocirculation of

Materials and Methods: we investigated pulp microcirculation of intact anterior teeth and premolars of the upper and lower jaws in 75 patients from 19 to 28 years (34 women and 41 men) using infiltration and periodontal methods of administering a local anesthetic using 4% articaine without epinephrine and with epinephrine 1: 200 000 and with epinephrine 1: 100 000 via laser Doppler flowmetry (LDF) and reodontografiey (RDG) with the registration of the pulse changes in the electrical resistance of the tooth pulp using infiltration and periodontamethods of administering a local anesthetic .

Results: The data analysis showed that the introduction of 4% articaine without epinephrine in 5 minutes reduces capillary blood flow (M) by 46.2% and increases the value of the impedance by 24.3%. In 30 min. (M) is 6.8 % lower than the reference value, and the impedance value is 5.6% above. Using 4% articaine with epinephrine 1: 200 000 in 5 min. decreases (M) by 59.2%, and increases the magnitude of the impedance by 35.3%. In 30 min. (M) is 14% of the initial value, and the impedance value increases by 17.2%. Using 4% articaine with epinephrine 1: 100 000 in 5 min. decreases (M) by 64% and increases the impedance by 48.2%. In 60 min. (M) is reduced by 7.2% and the impedance value increases by 8.3%. The differences are statistically significant ($r \leq 0.05$).



Conclusion: the registration of changes of hemomicrocirculation of theeth pulp allows determining the depth and duration of local anaesthesia.