

COMPARISON OF THE TISSUE DISSOLVING ABILITY OF SODIUM HYPOCHLORITE ON YOUNG AND ADULT INTACT PULP TISSUES

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ABSTRACT

Aim: The present investigation was undertaken to compare the tissue dissolving ability of adult and young intact human pulp tissues using different sodium hypochlorite concentrations.

Materials and methods: A total of 72 intact human pulps extirpated during routine RCT from two age groups (36 adult and 36 young pulps) were experimented with. Each group was divided into 4 equal subgroups of nine pulps each (n=9). Extirpated pulps were placed separately in glass test tubes and submerged in the specified body warm sodium hypochlorite solutions of different concentrations namely, 2.6%, 1.3%, and 0.7%. The fourth subgroup of pulps was submerged in distilled water to act as a control. Closed test tubes were then subjected to ultrasonic agitation until complete dissolution occurred. Time lapse until pulp tissue dissolution was recorded and results were statistically analyzed. **Results:** Distilled water was not able to dissolve any of the tested pulp tissues. All the experimented sodium hypochlorite concentrations dissolved pulp specimens completely. Time needed ranged from a minimum of 2.67 ± 1 minutes in young pulp specimens at 2.6% conc. to a maximum of 9.67 ± 3.71 minutes in adult pulp specimens at 0.7% conc. An inverse relation was found between sodium hypochlorite concentrations and the time needed for complete pulpal dissolution both in adult and young pulps. Young pulps dissolved in less time as compared to adult pulps. The difference was found to be statistically significant. **Recommendation:** Within the limits of this study it is recommended to use a 2.6% concentration of sodium hypochlorite for the adult pulps and 1.3% for the deciduous teeth during cleaning and shaping to affect complete pulp tissue dissolution in 3 minutes for the former and 4 minutes for the later cases.

INTRODUCTION

Cleaning and shaping of the root canal system is in the heart of successful endodontic treatment. Necrotic soft-tissue remnants in root canals may provide a source of nutrition for surviving microbiota. Three dimensional cleaning is always

accomplished through an irrigating system capable of removing pulp tissue remnants and dentin debris (1). As such one of the most important requirements of an intracanal irrigating solution is the ability to dissolve organic debris.

Nevertheless, irrigating solutions are depended upon nearly solely in dissolving pulp tissues

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