The Effect of Various Sodium Hypochlorite Solutions on Porcine Dental Pulp Dissolution

Kirkpatrick, Shannon (School: St. Patrick Catholic High School)

The purpose was to determine which sodium hypochlorite (NaOCl) solution dissolves porcine dental pulp tissue the quickest. Sodium hypochlorite (NaOCl) is used to help dissolve the infected and inflamed pulp tissue during a root canal procedure. I hypothesized that either the Vista Dental 3% Sodium Hypochlorite or the Vista Dental 6% Sodium Hypochlorite would dissolve the fastest because those products are specifically made for dental and endodontic use. A porcine head was obtained from Saigon Market in D'Iberville, MS and then I surgically extracted the molar teeth. The teeth were then split longitudinally in order to extirpate the pulp tissue in toto. The extirpated pulp tissue was then divided into 80 equal sized pieces (1mm) and then placed each sample of pulp in a small container containing 1mL of each the NaOCl solutions. Each test was run 10 times for each different NaOCl solution, for a total of 80 trials. After completing the experiment, the Clorox Splashless Bleach dissolved the pulp the quickest with an average time of 7: 37 (min). After realizing that the Splashless bleach dissolved the quickest, it was soon to be found out that the sodium hypochlorite concentration is a trade secret for Clorox, therefore it is unsure of how much sodium hypochlorite is actually in the Splashless bleach. An increase in NaOCl concentration shows a highly significant decrease in pulp dissolution time, proving that the Splashless bleach must have a higher NaOCl concentration than the other sodium hypochlorite solutions tested.

Awards Won: