Azad University of Medical Sciences, Tehran, Iran

Aim: Root-end filling materials get exposed to peripheral nerve fibers and nerve endings during and after periapical surgery. A few studies have been conducted to evaluate neurotoxicity of white mineral trioxide aggregate (WMTA). Furthermore, the effects of different biological fluids such as blood on neurotoxicity of WMTA remain unknown. This study evaluated the neurotoxic effects of different biological fluids (Blood, Synthetic Tissue Fluid, Deionized water) on WMTA and to compare it with that of gutta-percha (GP).

Method: Twenty WMTA sachets were selected, mixed, and packed into 40 cylindrical polycarbonate tubes. Specimens were divided into 4 groups of 10 samples each. Then, groups were exposed to blood, synthetic tissue fluid (STF), and deionized water for 24 hours, respectively and the forth group was mixed with STF. Gutta-percha and zinc oxide-eugenol were used as control. P19 stem cells were cultured over specimens and their attachment was observed by replica technique under scanning electron microscope. The amounts of cell attachment were categorized as 1, none to slight (0-25%); 2, mild (26- 50%); 3, moderate (51-75%); and 4, high (76-100%). Statistical analysis was performed with ANOVA and post hoc Tukey tests.

Result: The mean± standard deviations of the amounts of cell attachment for WMTA exposed to blood, WMTA exposed to deionized water, WMTA exposed to STF, WMTA mixed with STF, zinc oxide eugenol and Gutta percha were 3.5±0.52, 1.0±0.00, 2.7±0.67, 1.5±0.52, 1.0±0.00, and 3.5±0.52 respectively. There were significant differences between WMTA exposed to blood and other groups.

Conclusion: WMTA was neurotoxic when exposed to p19 stem cells in the presence of deionized water. However, in the presence of blood, it is as neurocompatible as GP. In addition, the current study demonstrates feasibility and suitability of replica technique to observe p19 neural cells morphology and behavior.

Nano Foam for Cleaning Endodontic Rotary Instruments

Karamifar K*, Saghiri MA, Mehrvarzfar P, Dadresanfar B

***Post Graduate Student of Endodontic Department, School of Dentistry, Tehran Islamic Azad University of Medical Sciences, Tehran, Iran**

Aim: The aim of this study is to present a nano foam for cleaning endodontic rotary instruments.

Method: Twenty RaCe endodontic rotary instruments contaminated with dentinal debris and tissue remnants were used in this experimental study. Ten samples were cleaned using a standard conventional method. The remaining ten samples were cleaned by inserting them in the nano foam once and then using the standard conventional method. The samples were observed under scanning electron microscope before and after the cleaning procedure. The amounts of remaining debris were determined by image analyzer software. Data were submitted to Wilcoxon for statistical analysis.

Result: Nano foam effectively removed irregular shaped foreign bodies and dentinal debris compared to conventional standard method ($p<0.05$), but complete cleaning was not always achieved.

Conclusion: It seems that using the nano foam can safely and significantly remove more remaining debris from the endodontic rotary instruments than the standard conventional method.

Endodontic Procedural Accident in a Patient Treated in the Department of Endodontics in Tehran University of Medical Science in 1385

Kazemi A*, Ashofteh Yazdi K, Honardar K