Debris on Endodontic Files (2/11)


The purpose of this research was to examine the presence of biological debris and the level of contamination on reusable endodontic instruments that were exposed to different cleaning methods before sterilization. The authors analyzed 180 endodontic instruments from 18 dental practices. These practices used different decontamination protocols for reusable instruments. The presence of organic debris was detected by the use of Van Gieson's stain. Forty-eight new stainless steel hand instruments were used as controls. The samples were examined by light microscopy. Residual biological debris was observed in 96% of the samples. The mean value of maximum biological contamination was 34% in the group in which the instruments were immersed in 3% hydrogen peroxide, brushed manually and immersed in 70% alcohol and dried; 25% in the group in which the files were manually brushed and immersed in commercially available disinfectants; and 5% in the group in which the instruments were brushed manually, soaked in 1% sodium hypochlorite and cleaned ultrasonically with a disinfectant. There was a statistically significant difference in the mean values with respect to the cleaning protocol applied (P < 0.001). The methods used to clean endodontic instruments appear to be generally ineffective for the removal of biological debris. The best method was the one that included mechanical, chemical and ultrasonic cleaning of instruments.

DECS Comment: Other studies have shown that it is difficult to remove organic debris from endodontic files when using automated cleaning equipment including ultrasonic cleaners and instrument washers. Because of the challenges of cleaning files, deterioration of the cutting surfaces during cleaning and sterilization, and wear during normal use, the Centers for Disease Control and Prevention (CDC) suggest considering endodontic files as single-use devices. In a survey of USAF dental clinics in 2009, 15% of clinics reported treating endodontic files as single use items. Although some devices may be used multiple times, it may often be safer, as well as more efficient and cost-effective to consider them single use.