Effect of Different Root Canal Irrigants on the Bond Strength of Resilon System to Dentin

Thesis

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وأنزل الله عليك
الكتاب والحكمة
وعلَّمَكَ مَا لَمْ تَكُن
تَعْلَمُ وكَانَ فَضْلُ
اللَّهِ عَلَيْكَ عَظِيماً
صدق الله العظيم
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Sara Sherif Sabry

To my dear family who supported me in every step in my life.

To my lovely husband who helped me to finish this work

and to my sweet kids

All praise and thanks to Allah,
the Most Compassionate,
the Most Merciful

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Cleaning of root canal system with intracanal irrigants is linked to bacterial control, lubrication of dentinal walls, flushing out debris and dissolution of organic and inorganic components of the smear layer. The presence of smear layer may prevent the penetration of intracanal medicaments into the irregularities of the root canal system and the dentinal tubules. Therefore the smear free dentin seems to be a desirable property to improve dentin bonding and adhesion of the resin-based obturating material to dentinal walls.

Varieties of conclusions were determined regarding the influence of irrigating solutions on the adhesive properties of root canal filling materials. Some have proposed that certain irrigants such as sodium hypochlorite (NaOCl) which is a powerful oxidizing agent may impair bonding of adhesive filling materials. Recent studies reported that NaOCl had no influence on the dentin bonding of adhesive resin based sealers but it can't remove the entire smear layer and promote dentin demineralization alone. Other irrigating solutions such as ethylene diamine tetra acitic acid (EDTA) and a mixture of Tetracyclin isomer, citric acid and a detergent tween 80 (Bio Pure MTAD) have the ability to remove the inorganic component of smear layer and produce demineralization of dentin that may increase the penetration of resin tags and improve dentin bonding. Chlorhexidine (CHX) is a broad spectrum antimicrobial irrigant that is adsorbed by dentin for 72 hours due to its substantivity. Also it has the capability of