Canal Cleaning Ability of Endovac System Using Different Irrigants: An In-vitro Study

Proposal submitted to the Endodontic Department Faculty of Dentistry, Ain Shams University For Partial fulfillment of requirements of master degree in Endodontics

By

Noha Amr Abdel Maksoud

B.D.S Ain Shams University (2006)

Faculty of Dentistry
Ain Shams University
2015

Supervisors

Prof.Dr Ihab Hassanein

Professor of Endodontics.
Chairman of endodontic department.
Faculty of Dentistry, Ain Shams University

Dr Kariem El Batouty

Associate professor of endodontics
Faculty of Dentistry, Ain Shams University

Dedication

I would like to dedicate this work to my adorable and most precious girls whom I really love and adore Alia and Laila.

And finally I would to dedicate this work for my friend Heba Fahmy whom I dreamt to be with us, may she rest in peace, love you Heba.

Acknowledgement

I would like to express my deepest gratitude to Prof Dr.Ihab El Sayed Hassanein, Professor of Endodontics, Faculty of Dentistry, Ain Shams University, for his support and generous guidance.

I would like also to express my deepest gratitude to Dr.Kareem El Batouty, Assistant Professor of Endodontics, Faculty of Dentistry Ain Shams University, for his enormous help, sincere advice and his great support.

I would like to thank my lovely family especially my great father Dr Amr who gave me the biggest ever support throughout my whole life and my dearest mum who gave me all the love and support, my dear supportive husband Ahmed who helped and supported me, my dear father in law Dr Hafez and my supportive dear friends Maii youssef and Susan Sarhan.

تأثيرجهازالاندوفاك فى تنظيف القنوات العصبية بأستخدام أنواع متعددة من الغسول:دراسه مخبريه

دراسة
مقدمة الى كلية طب الأسنان جامعة عين شمس كجزء متمم
للحصول على درجة الماجستير في علاج الجذور

مقدمة من

الطبيبة/ نهى عمرو عبد المقصود

بكالوريوس طب وجراحة الفم والأسنان
جامعة عين شمس

كلية طب الفم و الأسنان
جامعة عين شمس
٢٠١٥

تحت اشراف

أ.د/ ايهاب السيد حسانين

أستاذ بقسم علاج الجذور

رئيس قسم علاج الجذور

كلية طب الأسنان - جامعة عين شمس

د/ كريم البطوطى

استاذ مساعد بقسم علاج الجذور

كلية طب الأسنان - جامعة عين شمس

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

NaOCl	Sodium Hypochlorite
EDTA	Ethylenediaminetetraaceticacid
CHX	Chlorohexidine
CN	Conventional irrigation
Ev	Endovac
EDTAC	Ethylenediamine tetra-acetic acid plus Cetavlon
SEM	Scanning electron microscope
Ea	Endoactivator
PUI	Passive ultrasonic irrigation
PI	Passive irrigation
WL	Working length
CEJ	Cemento Enamel junction
PCA	Parachloroaniline
H_2O_2	Hydrogen peroxide
PCR	Polymerase chain reaction
MDI	Manual dynamic irrigation
MDA	Manual dynamic agitation
CUI	Continuous ultrasonic irrigation
ANP	Apical negative pressure

INTRODUCTION

Success of root canal therapy depends on the quality of several factors, including instrumentation, irrigation, disinfection and 3-dimensional obturation of the root canal. Mechanical and chemical effects of the irrigant solution are crucial during irrigation. Mechanical effects are generated by the flow and backflow of irrigant solutions in the root canal.

Ideally root canal irrigants should flush out debris, dissolve organic tissue, kill microbes, destroy microbial by products and remove the smear layer. To accomplish these objectives, there must be an effective delivery system to deliver the irrigating solution efficiently to the apical one third of the root canal.

Conventional irrigation using syringes as endodontic irrigating technique is still widely accepted by both general practitioners and endodontists. Some of these needles are designed to dispense an irrigant through their most distal ends whereas others are designed to deliver an irrigant laterally through closed ended side-vented channels.

Endovac system provides a constant flow of fresh irrigant to the working length. This patent pending system enables safe irrigation to the apical termination with an abundance of fresh and continuous irrigation solutions, unlike positive pressure systems which use cannulas to deliver irrigants in the canal. The Endovac system is a true apical negative pressure system that draws fluid apically by way of evacuation. In addition Endovac system provides cleaning, disinfection and smear layer removal during and after root canal preparation leading to maximum microbial control.