Treatment of Lateral Epicondylitis withPlatelet-RichPlasma versus Glucocorticoid

Thesis

Submitted for Partial Fulfillment of Master Degree
in Physical Medicine, Rheumatology and Rehabilitation

By

Amal Sayed Mohamed Abdelazeem
M.B.B.CH.
Ain Shams University

Under Supervision of

Prof. Dr. Mahmoud El Tayeb Nasser
Professor of Physical Medicine, Rheumatology and Rehabilitation
Faculty of Medicine – Ain Shams University

Prof. Dr. Ahmed Zaki El Yasaki
Professor of Physical Medicine, Rheumatology and Rehabilitation
Faculty of Medicine – Ain Shams University

Dr. Reem Mohamed Ezz El Din El Mallah
Assistant professor of Physical Medicine, Rheumatology and Rehabilitation
Faculty of Medicine – Ain Shams University

Faculty of Medicine
Ain Shams University
2017

Acknowledgments

First and foremost، thanks to **Allah,** *who; gave me the ability to complete this work.*

I would first like to express my unlimited gratitude and thankfulness to **Prof. Dr. Mahmoud El Tayeb Nasser,** *Professor of Physical Medicine, Rheumatology and Rehabilitation, Faculty of Medicine, Ain Shams University, for his acceptance to supervise my work and for his continuous support, It is a great honor to work under his guidance and supervision.*

Also I would like to express my sincere and deep gratitude، to **Prof. Dr. Ahmed Zaki El Yasaki** *Professor of Physical Medicine, Rheumatology and Rehabilitation, Faculty of Medicine, Ain Shams University, for his help, cooperation and valuable suggestions. His valuable advices and encouragement, without his encourage and help I would not have been able to finish this work.*

I would like also to thank with all appreciation **Dr. Reem Mohamed Ezz El Din El Mallah,** *Assistant professorof Physical Medicine, Rheumatology and Rehabilitation, Faculty of Medicine, Ain Shams University, for the efforts and time she has devoted to accomplish this work.*

Candidate

Amal Sayed Mohamed Abdelazeem

Contents

List of Abbreviations

Abbrev. Full term

ABI : Autologus Blood Injection

ACL : Anterior Cruciate Ligament

ANA : Antinuclear Antibody

CBC : Complete Blood Count

CEO : Common Extensor Origin

CGRP : Calcitonine Gene Related Peptide

CS : Corticosteroids

DC : Direct Current

ECRB : Extensor Carpi Radialis Brevis

EGF : Epidermal Growth Factors

ESR : Erythrocyte Sedimentation Rate

ESWT : Extracorporeal Shock Wave Therapy

FGF : Fibroblast Growth Factor

HA : Hyaluronic Acid

HGF : Hepatocyte Growth Factor

IGF : Insulin-like Growth Factor

IL 8 : Interleukin 8

KGF : Keratinocyte Growth Factor

LLLT : Low Level LASER Therapy

LE :Lateral Epicondylitis

MRI : Magnetic Resonance Image

List of Abbreviations (Cont.)

Abbrev. Full term

MWM : Mulligan's mobilization With Movement

NSAIDS : Non-Steroidal Anti- Inflammatory Drugs

PDGF : Platelet Derived Growth Factor

PGE2: Prostaglandin E2

PLRP : Platelet Leukocyte Rich Plasma

PRGF : Plasma Rich in Growth Factors

PRP : Platelet Rich Plasma

PRTEE : Patient Rated Tennis Elbow Evaluation

RF : Rheumatoid Factor

SP : Substance P

TE : Tennis elbow

TGFB :Transforming Growth Factor Beta

TH : Tyrosine Hydroxylase

US : Ultrasound

VAS : Visual Analogue Scale

VEGF : Vascular Endothelial Growth Factor

List of Tables

List of Tables (cont.)

Table No.	Title	Page No.

List of Tables (cont.)

Table No.	Title	Page No.

List of Figures

List of Figures (cont.)

Figure No.	Title	Page No.

List of Figures (cont.)

Figure No.	Title	Page No.

Introduction

Lateral epicondylitis of the elbow is a disease that mainly affects individuals who make repetitive movements with their wrists and/or fingers ***(Mishra and Pavelko, 2006).*** Also the term "lateral epicondylitis of the elbow" may be inappropriate, given that this pathological condition does not involve a truly inflammatory process, but rather, a degenerative process ***(Fredberg and Pedersen, 2008)***.

The name "tennis elbow" does not correspond to the reality. Although around 40–50% of tennis players present this disease, especially those who have been practicing this sport for long times, this group accounts for only 5% of the total number of individuals affected ***(Palacio et al., 2016).***

This injury predominantly involves the origin of the short radial extensor muscle of the carpus (Extensor carpi radialis brevis), in which microtears develop as a result of excessive and abnormal use, with formation of immature repair tissue ***(Palacio et al.,2016).***

The symptoms of lateral epicondylitis of the elbow are generally self-limited and may vary in duration from a few weeks to months. However, in some cases, there is no spontaneous resolution of the symptoms, and this invariably leads to a chronic condition ***(Thanasas et al., 2011).***

Lateral epicondylitis of the elbow is associated with long periods off work, which gives rise to high social security costs and substantial loss of professional productivity ***(Buchbinder and Richards, 2010).***

Ultrasound (US) examination has been shown to be an easy accessible, cost-effective, and risk-free method to examine tendons.The most common finding in a patient with lateral epicondylitis is hypoechoic regions and diffuse heterogeneity, calcifications and bone spurs can be seen. ***(Paavola et al., 1998).***

The treatment options range from relative rest in association with immobilization, physiotherapy, application of botulinum toxin, acupuncture, shockwave therapy, use of oral non-steroidal anti-inflammatory drugs, steroid injections and, most recently, use of platelet-rich plasma. Surgical procedures are only recommended when the symptoms last for more than six months and/or if other non-surgical treatment options have failed ***(Strujis et al., 2006).***

Local steroid injection has been proven to provide consistent and predictable short term pain relief ***(Tonks et al., 2007)***.

Platelet rich plasma (PRP) is a concentrate of platelets derived from the patient's own blood. Platelets in PRP contain growth factors and build up reparative processes. The action of PRP therapy in chronic tendinopathies is varied and

hypothesized to include angiogenesis, increase in growth factor expression and cell proliferation, increase the recruitment of repair cells and tensile strength **(*Raeissadat et al., 2014)***.

Lateral epicondylitis may be characterized by complex changes in the tendon in addition to an inflammatory process. Therefore, PRP owing to its high content of various growth factors may be more efficacious as a healing agent. However, studies on lateral epicondylitis with PRP treatment have yielded inconclusive results **(*Raeissadat et al., 2014)***.