



Comparative Study between the Efficacy of Platelet Rich Plasma with Methotrexate and Methotrexate Alone in Treatment of Chronic Plaque Psoriasis

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَأَنْزَلَ اللَّهُ عَلَيْكَ
الْكِتَابَ وَالْحِكْمَةَ
وَعَلَّمَكَ مَا لَمْ
كَانَ تَعْلَمُ وَكَانَ
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List of Abbreviations

Abb.	Full term
<i>ACD</i>	<i>Acid citrate dextrose</i>
<i>ACE inhibitors</i>	<i>Angiotensin converting enzyme inhibitors</i>
<i>BSA</i>	<i>Body surface area</i>
<i>CO2 laser</i>	<i>Carbon dioxide laser</i>
<i>DLQI</i>	<i>Dermatology life quality index</i>
<i>EGF</i>	<i>Epidermal growth factor</i>
<i>FDA</i>	<i>Food and Drug Administration</i>
<i>FGF</i>	<i>Fibroblast growth factor</i>
<i>GWAS</i>	<i>Genome-wide association studies</i>
<i>HGB</i>	<i>Hemoglobin</i>
<i>HLA</i>	<i>Human leukocytic antigen</i>
<i>IGF-1</i>	<i>Insulin growth factor</i>
<i>IL-12</i>	<i>Interlukin-12</i>
<i>IM</i>	<i>Intra muscular</i>
<i>IMID</i>	<i>Immune-mediated inflammatory diseases</i>
<i>LFT</i>	<i>Liver function</i>
<i>L-PRP</i>	<i>Leucocyte rich platelet rich plasma</i>
<i>MTX</i>	<i>Methotrexate</i>
<i>NAFL</i>	<i>Non-alcoholic fatty liver</i>
<i>NASH</i>	<i>Steatohepatitis</i>
<i>NF-κB</i>	<i>Nuclear factor kappa</i>
<i>NSAIDs</i>	<i>Non-steroidal anti-inflammatory drugs</i>
<i>PASI</i>	<i>Psoriasis area and severity index</i>
<i>PDGF</i>	<i>Platelet derived growth factor</i>
<i>PPP</i>	<i>Platelet-poor plasma</i>
<i>P-PRP</i>	<i>Pure platelet rich plasma</i>
<i>PRP</i>	<i>Platelet Rich Plasma</i>
<i>PSA</i>	<i>Psoriatic arthritis</i>

List of Abbreviations cont...

Abb.	Full term
<i>PUVA</i>	<i>Psoralen + UVA</i>
<i>RBC</i>	<i>Red blood cells</i>
<i>TGF-α</i>	<i>Transforming growth factor-alpha</i>
<i>TGF-β</i>	<i>Transforming growth factor-β</i>
<i>Th1</i>	<i>T helper 1</i>
<i>Th17</i>	<i>T helper 17</i>
<i>Th22</i>	<i>T helper 22</i>
<i>TNF-α</i>	<i>Tumor necrosis factor alfa</i>
<i>UVB</i>	<i>Ultra violet A</i>
<i>VEGF</i>	<i>Vascular endothelial growth factor</i>
<i>WB</i>	<i>Whole blood</i>
<i>WBCs</i>	<i>White blood cells</i>

INTRODUCTION

Psoriasis is a chronic immune-mediated disease affecting approximately 2-3% of general population. It is associated with significant vulnerability to co-morbidities such as cardiometabolic dysfunction, depression, and so on (*Schön et al., 2015*).

The pathogenesis of psoriasis can be subdivided into two main phases: the sensitization phase and the effector phase (*Kon et al., 2010*). During the sensitization phase specific effector and memory Th17, Th22 and Th1 cells emerge from naïve T-cells under the supervision of antigen presenting cells in secondary lymphatic organs. The effector phase is stimulated by exogenous triggers that activate skin- resident immune cells, which then secrete inflammatory proteins. These proteins lead to the infiltration of various immune cells into the skin where they activate each other and tissue cells, resulting in the characteristic visible psoriatic skin alteration (*Sabat et al., 2014*).

Conventional treatment of psoriasis included topical corticosteroids, vitamin D analogues, anthralin, topical retinoids, calcineurin inhibitors, salicylic acid, coal tar and moisturizers. Phototherapy may be in the form of sunlight, UVB phototherapy, narrow band UVB therapy, goeckerman therapy, PUVA and excimer laser. Oral or injected medications in the form of retinoids, methotrexate, cyclosporine and drugs that alter the immune system (biologics) as TNF- α blocker and

interleukin-17 blockers that target and suppress NF- κ B signaling (*Feldman et al., 2013*).

Methotrexate (MTX) acts by preventing the excessive division and multiplication of skin cells that causes the skin scaling and raised plaques in psoriasis (*Cather et al., 2014*).

Platelet rich plasma (PRP) is used as an innovative therapy in diverse fields including dermatology, dentistry, surgery, orthopedics, and aesthetics (*Lin et al., 2016*).

Platelet Rich Plasma (PRP) has been a breakthrough in stimulation and acceleration of soft tissue healing. Platelet rich plasma is a rich source of growth factors such as insulin-like growth factor 1 (IGF-1), platelet- derived growth factor (PDGF), transforming growth factor-b (TGF-b), vascular endothelial growth factor (VEGF), epidermal growth factor (EGF) and fibroblast growth factor (FGF), which are believed to mimic physiological healing process through NF- κ B suppression (*Zhang et al., 2013*).

Owing to this background, we hypothesized that PRP might be effective as an adjunct anti-inflammatory agent that would provide an attractive and risk-free (due to its autologous nature) combination option to manage hard-to-treat chronic plaque psoriasis.

AIM OF THE WORK

The aim of this work is to compare between the clinical efficacy of platelet rich plasma with methotrexate and methotrexate alone in treatment of chronic plaque psoriasis.