Role of Ultrasound Guided Injection of Platelet Rich Plasma (PRP) in Rotator Cuff Tendinopathy

Thesis

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List of Abbreviations

Abb.	Full term
Ga	*Gauge*
GFs	*Growth factors*
LHB	*Long head of biceps*
MRI	*Magnetic Resonance Imaging*
NSAID	*Non steroidal anti-inflammatory drugs*
PRP	*Platelet rich plasma*
RCT	*Rotator cuff tendinopathy*
RPM	*Revolutions per minute*
SD	*Standard Deviation*
SPADI	*Shoulder pain and disability index*
VGEF	*Vascular endothelial growth factors*

INTRODUCTION

Rotator cuff tendinopathy is a leading cause of shoulder pain and a significant source of disability. It is a common disorder, with its prevalence increasing substantially with age and affecting more than 50% of the general population by the age of 60 years ***(Kuijpers et al., 2006).***

Shoulder pain is the third most common cause of musculoskeletal disorders (MSDs), after low back pain and neck pain. Rotator cuff injuries are the most common cause of shoulder pain and disability, representing approximately 85% of the cases ***(Ostor et al., 2005).***

Supraspinatus is one of the rotator cuff muscles that responsible for abduction of the upper limb. Supraspinatus tendinopathy is common disorder and most of the time it is accompanied with another rotator cuff muscle tendinopathy but it is the most commonly injured ***(Saladin, 2016).***

The main risk factors for such cases include overweight, old age, repetitive lifting or overhead activities, certain jobs like; painters, carpenters and traumatic injuries (most common in young people ***(Ebert et al., 2017).***

Diagnosis and determination of the extent of Rotator cuff tendinopathy is based on history, clinical examination, and imaging modalities using musculoskeletal ultrasound. The role of imaging is to guide treatment decision, and determine whether the patient will undergo surgery or just will be managed conservatively ***(Ruotolo and Nottage, 2002; Mantone et al., 2000).***

Shoulder ultrasound has the advantages of being readily available, highly sensitive, relatively inexpensive and non-invasive. However, it has the disadvantages of being operator dependent, requiring standardized scanning technique ***(Dill, 2008).***

Nowadays, management of the rotator cuff tendinopathy is conservative which includes oral drugs (like NSAIDs), injections with corticosteroids and physical therapy ***or*** lastly surgical repair depending on the type and extent of the injury ***(Longo et al., 2012; Via et al., 2013).***

Recently, there has been increasing sustained interest concerning the area of biological therapies to augment musculoskeletal repair. There are numerous well documented studies about using blood and its products to facilitate the healing course ***(Asfaha et al., 2007; Chahal et al., 2012).***

Platelet- rich plasma (PRP), a whole blood product containing great concentrations of platelets that release different kinds of growth mediators with restorative properties. These platelet- derived growth factors, as transforming growth factor (TGF-B), which is concentrated in collagen synthesis, and vascular endothelial growth factor(VEGF), which aids to induce endothelial cell multiplying, migration, and stimulates cell mitosis ***(Hollinger et al., 2008; Sanchez et al., 2009; Hall et al., 2009).***

Despite increased use of PRP in management of different MSK disorders, only few studies have searched the value of PRP injection in cases of rotator cuff tendinopathy ***(De vos et al., 2010).***

AIM OF THE WORK

The study aims to assess the role of ultrasound guided injection of platelet rich plasma (PRP) in cases of rotator cuff tendinopathy (as anon-operative management).