


Platelet-Rich Plasma versus Corticosteroid Intra-Articular Injections for the Treatment of Trapeziometacarpal Arthritis: A Prospective Randomized Controlled Clinical Trial

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Michael-Alexander Malahias^{1,2}, Leonidas Roumeliotis^{1,3} , Vasileios S. Nikolaou¹ , Efstathios Chronopoulos¹, Ioannis Sourlas¹, and Georgios C. Babis¹

Abstract

Various systematic reviews have recently shown that intra-articular platelet-rich plasma (IA-PRP) can lead to symptomatic relief of knee osteoarthritis for up to 12 months. There exist limited data on its use in small joints, such as the trapeziometacarpal joint (TMJ) or carpometacarpal joint (CMCJ) of the thumb. A prospective, randomized, blind, controlled, clinical trial of 33 patients with clinical and radiographic osteoarthritis of the TMJ (grades: I-III according to the Eaton and Littler classification) was conducted. Group A patients (16 patients) received 2 ultrasound-guided IA-PRP injections, while group B patients (17 patients) received 2 ultrasound-guided intra-articular methylprednisolone and lidocaine injections at a 2-week interval. Patients were evaluated prior to and at 3 and 12 months after the second injection using the visual analogue scale (VAS) 100/100, shortened Disabilities of the Arm, Shoulder, and Hand Questionnaire (Q-DASH), and patient's subjective satisfaction. No significant differences between the baseline clinical and demographic characteristics of the 2 groups were identified. After 12 months' follow-up, the IA-PRP treatment has yielded significantly better results in comparison with the corticosteroids, in terms of VAS score ($P = 0.015$), Q-DASH score ($P = 0.025$), and patients' satisfaction ($P = 0.002$). Corticosteroids offer short-term relief of symptoms, but IA-PRP might achieve a lasting effect of up to 12 months in the treatment of early to moderate symptomatic TMJ arthritis.

Keywords

intra-articular injection, platelet-rich plasma, corticosteroid injection, trapeziometacarpal, thumb carpometacarpal

Introduction

Arthritis of the carpometacarpal joint (CMCJ) of the thumb or trapeziometacarpal joint (TMJ) is the second most frequent site of hand osteoarthritis following the interphalangeal joints.¹⁻⁴ The prevalence of radiographically proven thumb base arthritis, according to the current literature, is ranging between 15% and 36% in the female and between 5% and 11% in the male general population,³⁻¹⁰ demonstrating a 1 to 3 ratio of affected male to female patients. It usually manifests itself in middle-aged patients.⁵⁻⁷

There is a weak to modest association between radiographic arthritis and symptomatic disease^{3,11} with rates as high as 28%.⁸ Symptomatic TMJ arthritis is more frequent among women, older patients and patients with more advanced radiological features.^{3,7,9} Despite affecting only a small joint, symptomatic thumb base arthritis may cause significant disability, as it restricts thumb opposition,

renders the joint weak and unstable, and reduces pinch and grip strength.^{10,12}

Platelet-rich plasma (PRP) is an autologous concentrated cocktail of growth factors and inflammatory mediators.¹³ It contains increased levels of platelet-derived growth factor (PDGF)-AB, PDGF-BB, transforming growth factor- β 1,

¹2nd Orthopaedic Department, School of Medicine, National and Kapodistrian University of Athens, Konstantopoulou Hospital of Nea Ionia "Agia Olga", Athens, Greece

²Hand-Upper Limb and Microsurgery Department, Attica General Hospital KAT, Athens, Greece

³Trauma and Orthopaedic Department, Basingstoke and North Hampshire Hospital, Basingstoke, UK

Corresponding Author:

Vasileios S. Nikolaou, 2nd Orthopaedic Department, School of Medicine, National and Kapodistrian University of Athens, 21 Dimitriou Ralli Street, Maroussi, Athens, P.C. 15124, Greece.
Email: vassilios.nikolaou@gmail.com