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Comparative Efficacy of Prolotherapy versus Corticosteroid Intra-articular injection in Adhesive Capsulitis of the Shoulder : A Randomized Controlled Trial.

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Introduction and Background

Intra-articular corticosteroids, considered the standard treatment for adhesive capsulitis, can alleviate pain during movement and improve the range of motion in patients with frozen shoulder. However, corticosteroids may have adverse effects, including potential damage to the articular cartilage, which can accelerate degenerative changes in the shoulder joint and increased risk of joint infection. Prolotherapy presents an alternative treatment modality, reducing neural depolarization of articular nerves and initiating a controlled inflammatory response. Through this process, prolotherapy aims to stimulate repair and regeneration of the joint capsule, thereby contributing to improved joint function over time. Our study aimed to compare the efficacy of prolotherapy versus corticosteroids in patients with adhesive capsulitis.

Material and Method

We conducted a double-blind, randomized controlled trial of adhesive capsulitis patients undergoing ultrasound-guided intra-articular injection, comparing 10% dextrose (prolotherapy group) to 40mg triamcinolone (corticosteroid group). Shoulder pain and disability index (SPADI) for functional score was the primary outcome measure. Secondary outcomes were maximum ROM and visual analog scale (VAS).

Results

Fifty patients with primary adhesive capsulitis (mean age 57.1 ± 8.1 years) were randomized into prolotherapy ($n = 25$) and corticosteroid ($n = 25$) groups. Baseline characteristics were comparable. At 1 month, the corticosteroid group showed significantly greater improvement in SPADI scores (48.8 ± 14.1 vs. 57.6 ± 13.1 ; $p = 0.008$), indicating early functional benefit. However, no significant differences were found at 3 or 6 months. VAS pain scores and ROM improved in both groups at all time points, with no statistically significant intergroup differences. No adverse events were reported during the 6-month follow-up.

Conclusions

Intra-articular prolotherapy demonstrated clinical efficacy comparable to corticosteroid injection in patients with primary adhesive capsulitis at 3- and 6-month follow-up. Given its safety profile and similar midterm outcomes, prolotherapy may serve as a viable alternative treatment, particularly in patients for whom corticosteroid use is contraindicated.

