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Efficacy of Intra-Articular Hypertonic Dextrose (Prolotherapy) for Knee Osteoarthritis: A Randomized Controlled Trial

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Abstract

Purpose: To test the efficacy of intra-articular hypertonic dextrose prolotherapy (DPT) vs normal saline (NS) injection for knee osteoarthritis (KOA).

Methods: A single-center, parallel-group, blinded, randomized controlled trial was conducted at a university primary care clinic in Hong Kong. Patients with KOA (n = 76) were randomly allocated (1:1) to DPT or NS groups for injections at weeks 0, 4, 8, and 16. The primary outcome was the Western Ontario McMaster University Osteoarthritis Index (WOMAC; 0-100 points) pain score. The secondary outcomes were the WOMAC composite, function and stiffness scores; objectively assessed physical function test results; visual analogue scale (VAS) for knee pain; and EuroQol-5D score. All outcomes were evaluated at baseline and at 16, 26, and 52 weeks using linear mixed model.

Results: Randomization produced similar groups. The WOMAC pain score at 52 weeks showed a difference-in-difference estimate of -10.34 (95% CI, -19.20 to -1.49, *P* = 0.022) points. A similar favorable effect was shown on the difference-in-difference estimate on WOMAC function score of -9.55 (95% CI, -17.72 to -1.39, *P* = 0.022), WOMAC composite score of -9.65 (95% CI, -17.77 to -1.53, *P* = 0.020), VAS pain intensity score of -10.98 (95% CI, -21.36 to -0.61, *P* = 0.038), and EuroQol-5D VAS score of 8.64 (95% CI, 1.36 to 5.92, *P* = 0.020). No adverse events were reported.

Conclusion: Intra-articular dextrose prolotherapy injections reduced pain, improved function and quality of life in patients with KOA compared with blinded saline injections. The procedure is straightforward and safe; the adherence and satisfaction were high.

Keywords: intra-articular hypertonic dextrose; knee osteoarthritis; normal saline; prolotherapy; randomized clinical trial.

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Figures



Figure 1 Study flowchart.

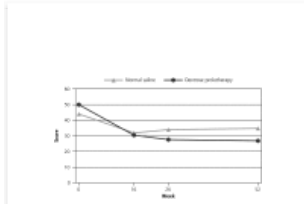


Figure 2 Change in observed WOMAC pain...

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