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DETERMINANTS OF EFFECT AFTER GOLD MICRO PARTICLES FOR KNEE OSTEOARTHITIS

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Background and aims

Gold microparticles injected intra-articular in knee osteoarthritic joints (KOA) using the patient's synovial fluid (SF) as the carrier may provide pain relief and an inflammatory modulatory effect. The present open, exploratory study investigated whether the use of hyaluronic acid as the carrier, neuropathic pain, BMI, and degree of osteoarthritis determine the effect.

Methods

This study included thirty patients with moderate KOA who received intraarticular injections with 20 mg gold microparticles (72.000 particles, 20-40 µm in diameter) using the patient's synovial fluid (SF) as the carrier, and 136 patients with mild to severe KOA who received 20 mg gold microparticles using hyaluronic acid (HA). We included in the analysis PainDetect, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) subscores for pain, stiffness, and function at inclusion and two years. We included in the analysis the use of HA, Body Mass Index (BMI) and Kellgren Lawrence score at inclusion, and the Global Rating of Change Scale at two years.

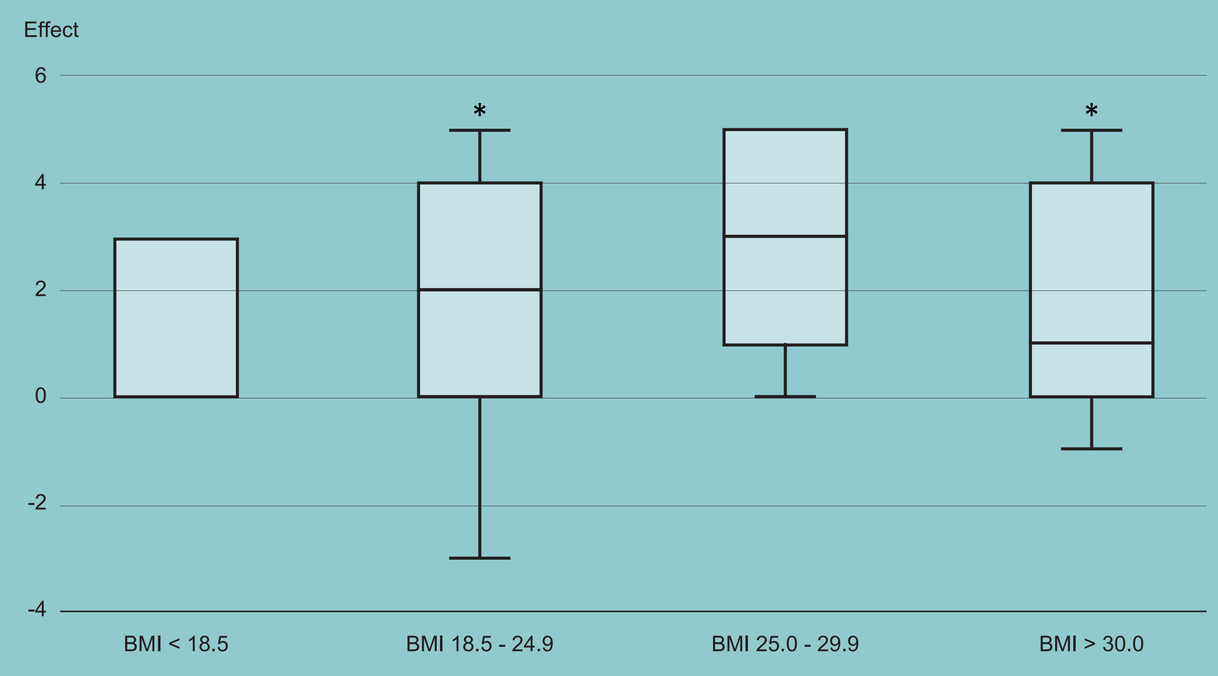

Figure 1. *The association between BMI class at inclusion and 2-year results after intra-articular injection of 20 mg gold micro-particles in 166 knee osteoarthritic patients (* P = 0.018, P = 0.031).*

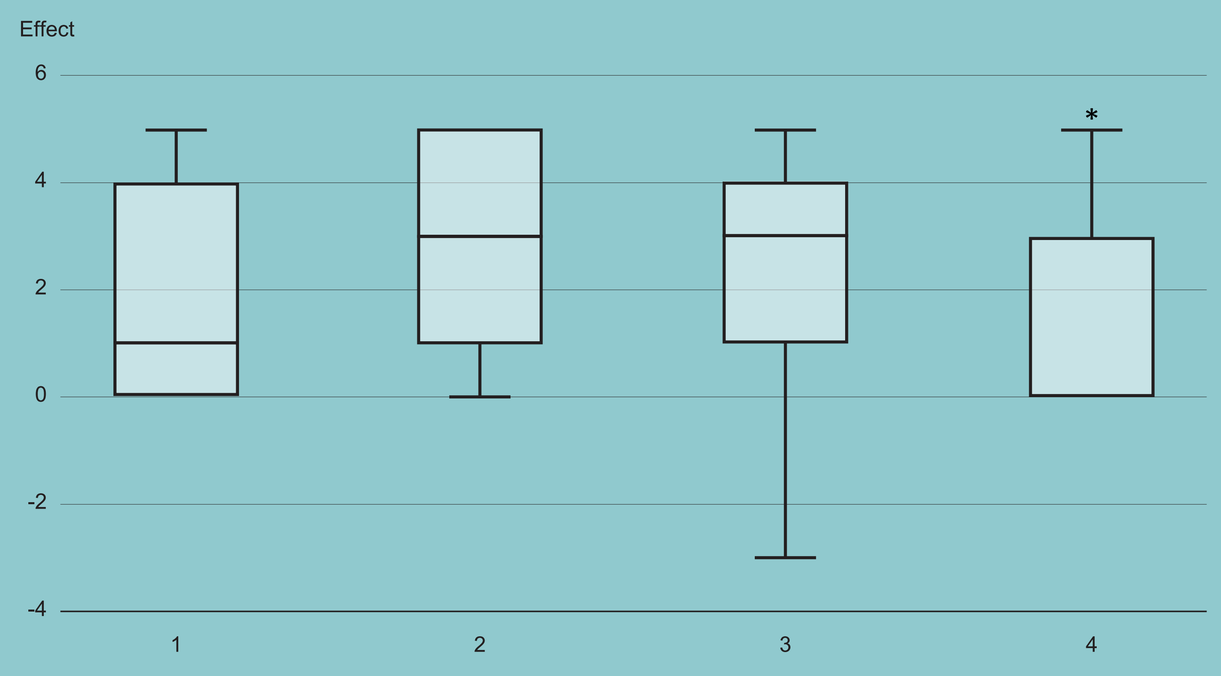

Figure 2. *The association between Kellgren-Lawrence grade at inclusion and 2-year results after intra-articular injection of 20 mg gold micro-particles in 166 knee osteoarthritic patients (* P = 0.0064).*

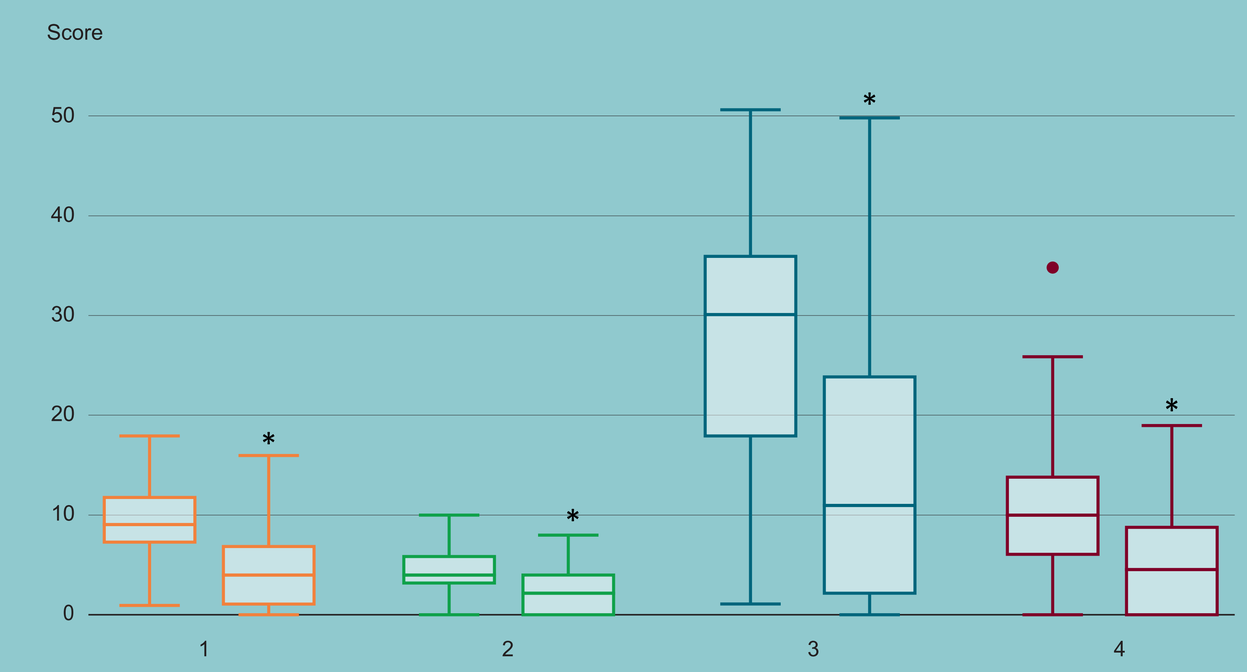

Figure 3. *Change in Womac Pain, Stiffness and Activity, and PainDetect, before and 2 years after intra-articular injection of 20 mg gold micro-particles in 166 knee osteoarthritic patients (* P < 0.0001).*

Effect	Odds Ratio	P-value
Age	1.01 (0.92-1.05)	0.567
Female sex	0.48 (0.21-1.09)	0.079
Increasing BMI	0.9 (0.83-0.97)	0.008
Use of hyaluronic acid	0.59 (0.18-1.86)	0.364
Kellgren-Lawrence grade:		
II	1.64 (0.35-7.7)	0.532
III	2.3 (0.58-9.02)	0.235
IV	0.2 (0.04-0.99)	0.049
PainDetect ≥ 13	0.4 (0.17-0.95)	0.027
Baseline odds	74.0 (1.53-3570.2)	0.030

Table 1. *Logistic interval regression analysis of determinants at inclusion for outcome years after intra-articular injection of 20 mg gold micro-particles in 166 knee osteoarthritic patients.*

Results

Table 1 presents the logistic interval analysis. The use of HA did not determine the effect at two years follow-ups when corrected for the other selected determinants (P = 0.36). PainDetect > 14 reduced the effect (P = 0.0027) or PainDetect ≥ 13 reduced the effect (P = 0.027).

Figure 1-3 presents the independent analysis. BMI > 30 reduced the effect (P = 0.031) (Figure 1). Kellgren-Lawrence grade 4 reduced the effect (P = 0.0064) (Figure 2). The three WOMAC subscores and PainDetect all improved at two years of follow-up (Figure 3). WOMAC subscores at inclusion did not determine the effect (P > 0.5).

Conclusions

Neuropathic pain, obesity and severe osteoarthritis hamper the effect of gold for KOA. u regression analysis the determinants were to a minor degree associated to a poorer effect against the effect of gold.

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