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Intra-articular gold micro particles relieve pain in knee osteoarthritis - A pilot study

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Background and aims

Many patients suffering from osteoarthritis (OA) do not get adequate pain relief. Evidence suggest an inflammatory component in OA pain.

The immunomodulatory effect of gold ions have for more than 50 years a known anti-inflammatory effect in the treatment of rheumatic arthritis. Gold ions alter the function of macrophages by inhibiting lysosomal enzymes and lowering production of pro-inflammatory cytokines (1-2).

Results

TSP was reduced 37.5 % (P = 0.027) and CPM was improved 22.4 % (P = 0.026) (Figure 5). PPT increased 10 % (P = 0.0001) (figure 6). PainDetect was reduced from 10 (1-26) to 3 (0-19) (P = 0.0005), WOMAC pain decreased from 9 (6-16) to 3 (0-15) (P = 0.0001), stiffness from 4 (1-8) to 2 (0-8) (P = 0.0009) (figure 7).

Conclusions

The significant improvements in pain caused by the intraarticular gold micro particles indicate an inhibition of inflammation. The significant improvements in qualitative sensory tests indicate less pain hyperalgesia.

References

5. Larsson A. Gold complexes from metalloid gold particles reduce inflammation and apoptosis and increase the regenerative responses in full thickness injury. Histochem Cell Biol 2006;126:367-76.

Methods

A cohort of 30 patients, aged ≥18years, pain ≥ 3 months, synovial effusion on MRI, and Kellgren-Lawrence OA grade 3-4 were included. Metallic gold 20 mg, 72,000 pieces, 20-40 µ-meter (Berlock-Micro-Implants, HumanGoldInject) (13-14) were injected into the knee joint using the patient’s own synovial fluid as the carrier. The primary outcome measure was temporal summation of pain (TSP). The secondary outcome measures were Conditioned Pain Modulation (CPM), knee Pressure Pain Threshold (PPT), the PainDetect score, and the Western Ontario and McMaster Universities Arthritis Index (WOMAC).