Experiences of viscosupplementation for knee osteoarthritis

David G Campbell, BMBS, PhD, FRACS, is Consultant Orthopaedic Surgeon, Wakefield Orthopaedic Clinic, Adelaide, South Australia.

Kevin R Angel, MBBS, FRACS, is Consultant Orthopaedic Surgeon, Wakefield Orthopaedic Clinic, Adelaide, South Australia.

Peter J Dobson, MBBS, FRACS, is Consultant Orthopaedic Surgeon, Wakefield Orthopaedic Clinic, Adelaide, South Australia.

Peter L Lewis, MBBS, FRACS, is Consultant Orthopaedic Surgeon, Wakefield Orthopaedic Clinic, Adelaide, South Australia.

S Tandon, FRCS, is Clinical Fellow, Wakefield Orthopaedic Clinic, Adelaide, South Australia.

Osteoarthritis is the most prevalent age related disease. Viscosupplementation with hylan G-F 20 is now registered with the Therapeutic Goods Administration in Australia for osteoarthritis of the knee. It involves a series of intra-articular injections of hyaluronic acid products into the arthritic joint. The exact mechanism of action is unclear. Perhaps increasing the viscoelasticity of the synovial fluid, which is secondarily decreased by osteoarthritis, plays a role.[1,2]

Hyaluronan products have been used for human and veterinary joint injection for almost 2 decades. However, their molecular weight is relatively low and does not adequately restore osteoarthritic synovial fluid. Hylan G-F 20 is manufactured from hyaluronate isolated from rooster combs, which is cross-linked to form high molecular weight hyaluronins; these approximate normal synovial fluid hyuronate. There has been plenty of media attention encouraging their use. We describe our clinical experience using the technique from a case series.

Method

Our database was interrogated to identify patients who had received a hylan G-F 20 injection. We identified 73 joints in 69 patients, all referred from their general practitioners and subsequently confirmed to have osteoarthritis by either plain radiographs or arthroscopy. Many patients requested a hylan G-F 20 injection. They were considered for symptom management without alteration to any current therapy including analgesia, nonsteroidal anti-inflammatory drugs, physiotherapy, or walking aids. Patients were treated with a course of three intra-articular injections of 2 mL hylan G-F 20 (Synvisc®) administered immediately following knee arthrocentesis.

Patients were contacted by an independent reviewer and advised to complete a telephone questionnaire rating their satisfaction, the effect of the procedure, complications, further treatments and whether they would recommend it to others. One patient had died of an unrelated cause, seven could not be contacted; leaving 61 patients (63 joints) a 90% follow up. Patients' mean age was 62.2 years (range 37-90); 34 men and 27 women. The mean follow up was 8 months.

Results

Subjective improvement was documented in 51% of respondents, 16 (25%) were 'slightly better', 11 (17%) were 'good' and six (10%) were 'excellent'. Of those who felt they had improved, 21 (33%) felt the improvement was greater than 1 month (mean of 5 months). Three patients (5%) were subjectively 'worse' and 28 (44%) were 'no better'.

Surgery for knee pain was undertaken within the study period by 11 patients: seven joint replacements, two arthroscopies, one high tibial osteotomy and one patellectomy. One patient had a steroid injection, three patients had a second course of injections, (of whom two had no further benefit and the other developed a severe reaction).

Swelling or redness at the injection site was noted in six patients. Twelve (19%) patients complained of moderate to severe pain at the time of the injections. Three patients developed the appearance of sepsis in their joint, requiring unscheduled visits: one was observed in one patient, another underwent arthroscopic washout, and one patient's scheduled total knee replacement was abandoned at arthrotomy in case of septic arthritis.

Patients felt the course of injections was worth the expense of the $445 nonreimbursable implant fee and additional consultation costs for 65% of patients, and 65% of patients would recommend it to others.

Discussion

Our case series includes mostly self selected patients with high expectations and consequently may be over optimistic. However, a number of other reports also suggest favourable results.[3,4] Some were well

designed randomised, controlled studies.[3,4,6,7] But studies using intra-articular injections have a marked placebo response.[5] Nevertheless, hylan G-F 20 has been shown to give a greater improvement than placebo injection,[3] and has a more sustained relief than arthrocentesis alone,[6,7] or injected glucocorticoids.[5] Our response to treatment of 52% is comparable to the previous placebo controlled trials.[3,8]

Despite this, we have largely abandoned the use of viscosupplementation with hylan G-F 20 or similar products as we believe knee osteoarthritis requires a more long term solution: viscosupplementation can alter the immediate intra-articular environment of the knee but fails to address the underlying pathology (loss of articular surface and subsequent joint malalignment). Failure to address the long term sequelae of knee osteoarthritis was evident in this study group where 20% of patients required further surgical intervention. Steroid injection as a less expensive and safe alternative should be considered when symptomatic relief for a period of 3–4 months is needed.

Our results question media influences on the introduction of new products. There is a disturbing trend in the Australian media to focus on new and unproven products and implants, particularly where manufacturers of an implant access patients directly. Health care professionals may be in a better position to judge the efficacy of a new product.

Implications of this study for general practice

- Osteoarthritis is the most prevalent age related disease in humans.
- Hylan G-F 20 viscosupplementation is approved only for knee osteoarthritis pain.
- It provides short term relief for approximately 50% of knee arthritis patients.
- Some patients suffer side effects, some serious.
- Long term therapy is usually recommended for the chronic pain of knee arthritis.

Conflict of interest: none declared.

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Correspondence
Email: dc@woc.com.au