

Hylan G-F 20 was safe and effective in knee osteoarthritis and had a relatively low cost–utility ratio

Raynauld JP, Torrance GW, Band PA, et al. A prospective, randomized, pragmatic, health outcomes trial evaluating the incorporation of hylan G-F 20 into the treatment paradigm for patients with knee osteoarthritis (Parts 1 and 2): clinical and economic results. *Osteoarthritis and Cartilage*. 2002;10:506-27.

QUESTION

In patients with knee osteoarthritis (OA), what are the effectiveness, cost-effectiveness, and safety of hylan G-F 20 in addition to an appropriate care regimen?

DESIGN

Randomized (allocation concealed*), unblinded,* controlled trial with 1-year follow-up.

SETTING

14 sites in Canada.

PATIENTS

255 ambulatory patients with radiologically verified knee OA and a visual analogue scale (VAS) total pain score > 175 mm of 500 mm on the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain scale despite treatment with acetaminophen or nonsteroidal anti-inflammatory drugs. Exclusion criteria included grade IV radiologic changes, inflammatory arthropathy, a baseline study knee tense effusion, chondrocalcinosis, and severe varus or valgus study knee deformity. Follow-up was 91%.

INTERVENTION

Patients were allocated to appropriate care with (intervention group, $n = 127$) or without (control group, $n = 128$) hylan G-F 20. Hylan G-F 20 was given in 3 intra-articular injections to the study knee and, if needed, to the contralateral knee. Appropriate care was defined by the 1995 American College of Rheumatology guidelines.

MAIN OUTCOME MEASURES

Improvement in WOMAC pain scores and patient assessment of OA, safety, cost-effectiveness, and cost–utility outcomes. Costs were in 1999 Canadian dollars.

MAIN RESULTS

Analysis was by intention to treat. The intervention reduced pain more than did the control, as shown by greater percentage reductions in WOMAC pain scores (38% vs 13%, $P < 0.0001$). More patients in the intervention than control group had $\geq 20\%$ improvement in WOMAC pain scores in the study knee and WOMAC pain improvement plus either 20% improvement in function or stiffness scores (Table). The intervention group had greater patient-rated improvements in OA and fewer side effects (Table). The intervention group had higher costs (\$2125/y vs \$1415/y, $P < 0.05$) and

greater quality-adjusted life-years (QALYs) (0.071, $P < 0.05$). From the societal perspective, the incremental cost-effectiveness ratio was CDN \$2505/patient improved and the incremental cost–utility ratio was CDN \$10 000/QALY gained.

CONCLUSIONS

In patients with knee osteoarthritis, hylan G-F 20 in addition to an appropriate treatment regimen reduced knee pain and improved health-related quality of life. The cost per quality-adjusted life-year gained was lower with hylan G-F 20 than the suggested Canadian threshold for adoption.

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*See Glossary.

Appropriate care with vs without hylan G-F 20 in knee osteoarthritis (OA)†

Outcomes at 1 y	Hylan G-F 20	No hylan G-F 20	RBI (95% CI)	NNT (CI)
Improved WOMAC pain	69%	40%	72% (36 to 121)	3 (3 to 6)
Improved WOMAC pain and stiffness or physical functioning	62%	35%	77% (36 to 134)	4 (3 to 7)
Improved OA in study knee‡	73%	27%	168% (101 to 265)	2 (2 to 3)
Improved OA in all joints‡	38%	17%	120% (43 to 243)	5 (3 to 10)
Absence of side effects	62%	41%	53% (20 to 98)	5 (3 to 11)

†WOMAC = Western Ontario and McMaster Universities Osteoarthritis Index. Other abbreviations defined in Glossary; RBI, NNT, and CI calculated from data in article.

‡Patient global assessment report.

COMMENTARY

The study by Raynauld and colleagues is a well-designed trial of effectiveness and cost-effectiveness. The trial aims to compare outcomes in “a world with hylan G-F 20” with those in a “world without hylan G-F 20.” The only problem is that patients in “a world without hylan G-F 20” knew that the treatment was available and that they were denied it. This may have adversely influenced the outcomes of the control group, which is reflected in the finding that 16% dropped out of the control group whereas only 2% dropped out of the intervention group.

The results of the intervention group are probably generalizable because the inclusion and exclusion criteria reflect everyday practice. The trial showed not only that a course of hylan G-F 20 injections was effective in the short term (1 y) but also cost-effective. It is important to note that patients who received hylan G-F 20 injections required less

analgesic and less nonsteroidal therapy and therefore had fewer adverse events. However, the injections added to the expense of the treatment.

The investigators calculate that, in the Canadian context, the cost/QALY is US \$6600. They imply that this compares favorably with the cost/QALY of hip arthroplasty (US \$7500). Although the economic analysis is inevitably specific to the Canadian system, the items of cost in this trial may be generalizable. If the authors could supply health economists in other countries with a more detailed list of their cost items, these could be used to model the overall cost of the 2 study groups in different health care systems.

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