The use of conventional and complementary treatments for knee osteoarthritis in the community

K. M. Jordan, S. Sawyer, P. Coakley, H. E. Smith¹, C. Cooper and N. K. Arden

Objectives. The aim of the survey was to assess the prevalence of clinically diagnosed knee osteoarthritis (OA) in two general practice populations in the Wessex region (practice A: a deprived urban population and practice B: an affluent rural population) and to assess both conventional and complementary therapy use in these two populations.

Methods. All patients over 55 yr with a clinical diagnosis of knee OA, as identified from the practice computerized records, were sent a questionnaire about their knee pain and their use of conventional and complementary treatments.

Results. A total of 4566 patients over 55 yr were registered in the two practices. Of these, 828 (18.13%) had a clinical diagnosis of knee OA and 240 (29%) patients were asymptomatic at the time of survey. Physiotherapy was under-utilized with only 13.1% of patients having received either hospital- or GP-based physiotherapy. There was a high prevalence of non-steroidal anti-inflammatory drug (NSAID) use, being significantly more in the affluent population ($P < 0.05$). In the affluent population there were statistically more social class groups 1–3a; statistically more NSAIDs, glucosamine and chondroitin sulphate were also used. The median amount spent on complementary medicine per month was £5.00, with the affluent population spending significantly more ($P < 0.05$).

Conclusions. In this population, physiotherapy is an under-utilized treatment for knee OA, in spite of its recommendation as first-line treatment in all guidelines. Complementary medicines and therapies are commonly used, particularly in affluent populations.

Key words: Complementary medicine, Glucosamine sulphate, Knee joint, Osteoarthritis, Physiotherapy, NSAIDs.

Osteoarthritis (OA) is the most common form of arthritis in Western populations. The knee, the principal joint to be affected by OA, results in disabling knee symptoms in an estimated 10% of the UK population older than 55 yr, a quarter of whom are severely disabled [1]. In the same study it was found that approximately one-quarter of people aged over 55 yr have had an episode of persistent knee pain lasting at least 1 week and of these only one in six had consulted their general practitioner (GP). Guidelines on the management of knee OA published by the European League Against Rheumatism (EULAR) and the American College of Rheumatology (ACR) [2, 3] advocate a structured treatment pathway, starting initially with physiotherapy, paracetamol and lifestyle advice and then adding further treatment in a stepwise fashion [4].

The use of complementary medicines and therapies are growing in popularity in patients with knee OA, in part due to the positive media coverage of the benefits of glucosamine and chondroitin sulphate [5, 6]. Indeed, recently published guidelines for the management of knee OA have included complementary medicines in their assessments.

There is currently little published information on the use of complementary treatment modalities in the community and, in particular, the costs to the patient and how they are integrated with conventional therapy. The little literature available focuses on patients’ attitudes and understanding of complementary therapies in the National Health Service rather than the frequency of their use [7].

We therefore undertook a primary care study to evaluate the prevalence of clinically diagnosed knee OA and the use of conventional and complementary therapies in those patients.

Patients and methods

Patients

Two practices from the former Wessex region participated in this study; practice A (patient population of 8000 in a deprived urban area) and practice B (patient population of 6500 in an affluent rural area). All patients over 55 yr with a clinical diagnosis of knee OA were identified from computerized practice records and reviewed by the GPs to confirm the diagnostic label was correct. Both practice A and B had on-site physiotherapy assessment and direct access to hospital physiotherapy services. In addition, practice A also offered acupuncture as a service.

Patients were sent a questionnaire about their knee pain (duration, frequency of pain), use of conventional and complementary medications and therapists and the cost per month (‘how much do you spend on complementary medicines/therapies in the average month’) of complementary treatment. Basic demographic information—age, sex, ethnicity, occupation, socio-economic status—was also collected.

The questionnaire restricted the participants’ responses to their knee pain only and read ‘all questions refer to medicines/therapies used for the treatment of your knees ONLY’. They were invited to
complete the questionnaire if they did not have knee pain at the time of survey also. All information provided by the participants was based on recall. The commonly used conventional and complementary medicines were listed (e.g. paracetamol, anti-inflammatory drugs, co-proxamol, co-dydramol, glucosamine, chondroitin, cod liver oil, evening primrose oil, Devil’s claw) and a ‘yes’ or ‘no’ box was ticked; however, there was additional space to add items not listed. The participants were asked if they had ever used these items, the total daily dose they had used and the length of time they had taken the treatment for. The conventional and complementary therapies were also listed (e.g. GP, hospital physiotherapist, community physiotherapist, hospital consultant, chiropractor, osteopath, acupuncture) and the participants were asked if they had ever used them and the number of times they had visited/used these treatments within the last year.

Those patients who did not return their questionnaires within 6 weeks of initial dispatch were re-mailed a second questionnaire and reminder letter.

Social class was classified according to occupation [8]. Where a female respondent had declared no occupation, her husband’s occupation was used.

Full ethical approval from the Southampton and South West Hampshire research and ethics committee was obtained. Patient consent was obtained according to the Helsinki declaration.

Statistics

All statistical analyses were carried out using χ², Student’s t-test and logistic regression in SPSS Version 10.1 for Windows.

Results

A total of 4566 patients aged over 55 yr were registered with the two practices (practice A: 2266 and practice B: 2300). Of these, 828 (18.1%) patients (practice A: 14% and practice B: 22.2%) had a clinical diagnosis of knee OA; 828 questionnaires were sent and 466 (56%) were returned suitable for analysis (practice A: 52% and practice B: 59%).

Non-responders were older (mean 78 yr), but did not differ in gender distribution or practice from the responders. There were no statistical differences between the two populations surveyed in terms of mean age (practice A: 73.2 yr; practice B: 73.5 yr), gender (practice A = practice B: 2.18 female:1 male), pain duration and pain being present on most days. There was a low ethnic mix, with only one Asian patient and no Afro-Caribbean patients completing the questionnaire. However, there was a marked statistical difference in social class distribution by GP surgery (P < 0.05), a much greater proportion of social classes 1.0 to 3.1 (non-manual) was found in practice B than practice A.

Of those patients with a diagnosis of knee OA, 29% were asymptomatic at the time of survey. Also, 37% had not seen their GP for their knee OA in the preceding year.

Main findings

Physiotherapy use was low with only 13.1% of patients having received either hospital- or GP-based physiotherapy (Table 1). There was no difference between the two practices; neither was physiotherapy related to gender, ethnicity, pain duration or if knee pain had been present on most days. However, those in higher social class groups had a statistically higher use of physiotherapy (P = 0.05) (Table 2). In those who had previously seen a hospital consultant for their knee OA, physiotherapy use was higher (31.5%), but still surprisingly low.

Paracetamol was used by 42.5% of patients. A significantly greater use was seen in women (49.7%) compared with men (28.3%) (P < 0.05), and in those who had pain on most days (P < 0.05). There was no difference in use between surgeries, ethnicity, social class or pain duration. Only 31 patients (7%) had used a combination of paracetamol and physiotherapy.

Non-steroidal anti-inflammatory drugs (NSAIDs) were used in 45.5% of patients and were used significantly more in practice B (P < 0.05). Patient characteristics were not associated with NSAID usage. A total of 101 patients (47.6%) were taking a NSAID without a simple analgesic combination. There were no other associations found with NSAID usage.

Complementary drug therapies

Complementary medicine was used by 54.3% of patients surveyed; cod liver oil was most commonly used (38.2%). Glucosamine sulphate and chondroitin sulphate were also widely used and were significantly more likely to be used by patients registered with practice B (P < 0.05 in each case). Those in a higher social class group were significantly more likely to use glucosamine sulphate, chondroitin sulphate and New Zealand green-lipped mussels (P < 0.05 in each case). Duration of knee OA and the presence or absence of pain was not related to the use of complementary medicine.

The median amount spent each month on complementary medicines among the patients who used any was £5.00 (range £0.66 to £150.00). Those in practice B and of a higher social class spent significantly more (P < 0.05).

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**Table 1. Conventional and complementary treatment use according to practice**

<table>
<thead>
<tr>
<th>Treatment modality</th>
<th>Total use (%)</th>
<th>Practice A (affluent) (n = 164)</th>
<th>Practice B (deprived) (n = 302)</th>
<th>% Difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiotherapy</td>
<td>13.1</td>
<td>13.4</td>
<td>12.9</td>
<td>0.5 (−5.9, 6.9)</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>42.5</td>
<td>37.5</td>
<td>45</td>
<td>−7.2 (−16.5, 2.1)</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>45.5</td>
<td>37.8</td>
<td>49.7</td>
<td>−11.9 (−21.0, −2.6)*</td>
</tr>
<tr>
<td>GP visit</td>
<td>62.7</td>
<td>60.4</td>
<td>64.4</td>
<td>−4.0 (−13.2, 5.2)</td>
</tr>
<tr>
<td>Hospital consultant</td>
<td>23.2</td>
<td>22.6</td>
<td>23.5</td>
<td>−0.9 (−8.9, 7.1)</td>
</tr>
<tr>
<td>Cod liver oil</td>
<td>38.2</td>
<td>35.4</td>
<td>39.7</td>
<td>−4.3 (−13.5, 4.9)</td>
</tr>
<tr>
<td>Glucosamine sulphate</td>
<td>15.9</td>
<td>6.1</td>
<td>21.3</td>
<td>−15.2 (−21.1, −9.3)*</td>
</tr>
<tr>
<td>Chondroitin sulphate</td>
<td>5.4</td>
<td>1.2</td>
<td>7.6</td>
<td>−6.4 (−9.8, −3.0)*</td>
</tr>
<tr>
<td>Chiropractor</td>
<td>7.7</td>
<td>1.2</td>
<td>12.9</td>
<td>−11.7 (−15.8, −7.6)*</td>
</tr>
<tr>
<td>Osteopath</td>
<td>4.5</td>
<td>1.8</td>
<td>6.0</td>
<td>−4.2 (−7.5, −0.8)*</td>
</tr>
</tbody>
</table>

*Statistically significant (P ≤ 0.05).

**Table 2. Conventional and complementary medicine use according to social class**

<table>
<thead>
<tr>
<th>Treatment modality</th>
<th>Social class</th>
<th>Non-manual (n = 263)</th>
<th>Manual (n = 141)</th>
<th>% Difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiotherapy</td>
<td></td>
<td>16.0</td>
<td>9.2</td>
<td>6.8 (0.3, 13.3)*</td>
</tr>
<tr>
<td>Paracetamol</td>
<td></td>
<td>46.8</td>
<td>37.6</td>
<td>9.2 (−0.8, 19.2)</td>
</tr>
<tr>
<td>NSAIDs</td>
<td></td>
<td>51.0</td>
<td>42.6</td>
<td>8.4 (−1.8, 18.6)</td>
</tr>
<tr>
<td>GP visit</td>
<td></td>
<td>66.0</td>
<td>63.1</td>
<td>2.9 (−6.9, 12.7)</td>
</tr>
<tr>
<td>Hospital consultant</td>
<td></td>
<td>26.2</td>
<td>22.0</td>
<td>4.2 (−4.5, 12.9)</td>
</tr>
<tr>
<td>Cod liver oil</td>
<td></td>
<td>39.5</td>
<td>40.4</td>
<td>−0.9 (−10.9, 9.1)</td>
</tr>
<tr>
<td>Glucosamine sulphate</td>
<td></td>
<td>22.1</td>
<td>8.5</td>
<td>13.6 (6.8, 20.4)*</td>
</tr>
<tr>
<td>Chondroitin sulphate</td>
<td></td>
<td>8.0</td>
<td>2.1</td>
<td>5.9 (18.6, 9.9)*</td>
</tr>
<tr>
<td>Chiropractor</td>
<td></td>
<td>9.9</td>
<td>5.0</td>
<td>4.9 (−0.2, 10.0)</td>
</tr>
<tr>
<td>Osteopath</td>
<td></td>
<td>6.1</td>
<td>2.1</td>
<td>4.0 (0.26, 7.7)</td>
</tr>
</tbody>
</table>

*Statistically significant (P ≤ 0.05).
Complementary non-drug therapies

In total, 98 (21%) patients used complementary therapists. Those most commonly used were chiropractors (7.7%), acupuncturists (6.2%) and osteopaths (4.5%).

Those patients in practice B were significantly more likely to have seen a chiropractor or an osteopath ($P < 0.05$ in each case). In contrast, those patients who had had acupuncture were significantly more likely to be from practice A ($P < 0.05$), where the GPs performed acupuncture. Use of a complementary therapist was not related to the presence or duration of pain. Although not significant owing to the low numbers involved, it is interesting to note that the less commonly utilized complementary therapists were used solely by women (homeopathy, reflexology, aromatherapy).

Patients who had seen a complementary therapist were significantly more likely to have also seen a physiotherapist or a hospital consultant.

In those where data are available, the median amount spent per month on complementary therapies was £13.50 (range £1.00 to £150.00) with significantly more money spent by patients from practice B.

Discussion

This study demonstrates a high prevalence of clinically diagnosed knee OA in primary care leading to a considerable health resource utilization with 63% of patients having visited their GP in the preceding year and 23% having seen a hospital consultant. Also of interest is the high percentage of patients who were asymptomatic when surveyed (29%), demonstrating that clinically diagnosed knee OA is not always clinically persistent or progressive and may even resolve.

Physiotherapy is very much under-utilized in this survey population, contrary to treatment protocols advocated in published guidelines from Europe and the USA, which recommend physiotherapy as a first-line management. Even after consulting a hospital specialist for their knee OA, physiotherapy use remains low. This probably reflects a combination of a lack of resource and awareness of its effectiveness and strategies to increase the provision and uptake are required.

Current guidelines suggest that NSAIDs should only be used in the event of complete or partial failure of paracetamol and physiotherapy treatment. We have demonstrated a high usage of NSAIDs in primary care with only 9% of patients who are using a NSAID also using paracetamol and physiotherapy. This further reinforces the importance of the need to implement strategies that increase physiotherapy and paracetamol usage as first-line treatment in knee OA. We were not able to differentiate between patients who had purchased over-the-counter NSAIDs and those who received a prescription NSAID.

Complementary medicine use was higher than anticipated; the most commonly used supplement being cod liver oil. Although there is current interest in the use of fish oils and vitamin D as modulators of the metabolism of articular cartilage [9], there is only one randomized controlled trial assessing the use of cod liver oil in osteoarthritis compared with placebo and conventional treatment [10], which demonstrated no clear benefit in terms of pain relief or improvement in activities of daily living over placebo.

There is an emerging evidence base that glucosamine sulphate and chondroitin sulphate lead to significant pain relief and possibly exhibit a disease-modifying effect [11–13]. Glucosamine sulphate has been regularly featured in the lay press and this is reflected in its high usage, particularly in those of a higher social class.

Those who used complementary therapies were more likely to have seen a physiotherapist, a hospital consultant and use complementary medicines suggesting healthcare-seeking behaviour. These patients were also more likely to belong to a higher social class group.

Owing to the low ethnic mix in this population, we are unable to generalize these results to those populations with a high ethnic mix. However, we would anticipate that similar results would be found in other parts of the UK with comparable ethnic proportions.

Those patients who did not respond to the survey were of a similar age, gender and social class to those who did. There is no information regarding treatments used in the non-responders, therefore we cannot conclude that those who did not respond to the survey required or used fewer or more treatments or had a higher or lower response rate to treatments than those who completed the survey. However, the patients who did not have current knee pain who completed the survey (29%) did not differ from those who did have knee pain in any treatment modality utilized. We therefore feel our results are generalizable to other UK populations.

In conclusion, we have confirmed the high prevalence of clinical knee OA in primary care. Current management is heavily reliant on NSAIDs and under-utilizing physiotherapy and simple analgesics. Strategies to increase the provision and uptake of these non-harmful, simple treatment measures are required.

Acknowledgements

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The authors have declared no conflicts of interest.

<table>
<thead>
<tr>
<th>Rheumatology</th>
<th>Key messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee pain is a common problem in primary care.</td>
<td></td>
</tr>
<tr>
<td>Physiotherapy is an under-utilized treatment for knee osteoarthritis.</td>
<td></td>
</tr>
<tr>
<td>Complementary medicines are commonly used, particularly in higher social classes and affluent populations.</td>
<td></td>
</tr>
</tbody>
</table>

References