The conservative treatment of ankle osteoarthritis

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CHAPTER 5

The impact of ankle osteoarthritis
The difference of opinion between patient and orthopedic surgeon

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Abstract

Background: Outcome measures for ankle osteoarthritis (OA) are created by physicians with little input of the target patient group. The aim of this study was to determine the difference in opinion between patients and orthopedic surgeons concerning the importance of specific symptoms of ankle OA and its impact on daily life and function.

Methods: A modified Delphi method was applied, consisting of structured interviews with patient focus groups and experts, followed by a poll using 32 statements. The difference in opinion between patients and orthopedic surgeons was evaluated.

Results: Forty patients and forty orthopedic surgeons responded to the 32 statements. Statistically significant differences in opinion on symptoms, function and the impact of ankle OA on daily life were found.

Conclusions: This study demonstrates a significant difference in opinion between patients and orthopedic surgeons concerning specific symptoms of ankle OA. These results advocate incorporating the needs and demands of the individual patient for new outcome measures.

Keywords: Osteoarthritis, Ankle, Impact, Patient reported Outcome Measures.
Introduction

Ankle osteoarthritis (OA) is post-traumatic in about 75% of the patients\textsuperscript{[1,2]}. Ankle trauma occurs in many patients at a relatively young age\textsuperscript{[1,3]}. Consequently, the majority of ankle OA patients are relatively young and their expected life span is significantly longer than the typical remaining life span of hip or knee OA patients. Patients experience serious disabilities, which prevent them from participating in moderate to heavy labour and sports activities. Due to the short and long term complications, surgical treatment has always been specifically indicated for end-stage ankle OA\textsuperscript{[4-9]}. Little is known about the disabilities and symptoms patients experience at an early stage of ankle OA. Since no cure is available at this point, the conservative treatment of symptomatic ankle OA focuses mainly on treating pain and stiffness, improving or maintaining function with prevention of further deterioration of the joint\textsuperscript{[10]}.

To monitor the effect of these conservative treatment modalities, different scoring systems are used. The Arbeitsgemeinschaft für Osteosynthesefragen Handbook on Musculoskeletal Outcomes Measures and Instruments describes 42 ankle scores\textsuperscript{[11]}. Seventeen of these are validated. Five are used for monitoring the conservative treatment of ankle OA, i.e. the American Academy of Orthopedic Surgeons (AAOS) foot and ankle scale, the American Orthopedic Foot and Ankle Society Scale (AOFAS) score, the Ankle Osteoarthritis scale (AOS), the Foot and Ankle Ability Measure (FAAM), and the Foot and Ankle Outcome Score (FAOS)(Table 1)\textsuperscript{[12-20]}. The Foot Function Index (FFI) is mentioned in the book as a foot score, but is often used as an outcome measure for ankle problems\textsuperscript{[21-25]}. The AOFAS scale has been used more frequently in orthopedic literature than the FFI, the AOS, and the Visual Analogue Score (VAS) for pain\textsuperscript{[26,27]}. Other, more general outcome measures are the Western Ontario and McMaster Universities Arthritis Index (WOMAC) and Short Form 36 (SF-36)\textsuperscript{[28-30]}. The former is normally used and validated to evaluate the condition of patients with hip or knee OA, but it is also applied to patients with an arthritic condition in the ankle\textsuperscript{[26]}. The latter is used to evaluate individual health status\textsuperscript{[29]}. In order to get an outcome measure that monitors clinical outcome in ankle OA patients, it is imperative to know what is considered relevant for the target patient group\textsuperscript{[31]}. Most outcome scores were made by physicians and validated for one specific
disease. It seems logical to use terms and outcomes that are important to the target group if constructing a useful outcome measure that can be used as a Patient Reported Outcome Measure (PROM). PROM’s are mandatory nowadays to evaluate the quality and effect of treatments.

As most of the outcome measures are created by physicians with no or little input of the target patient group, the primary question of the current study was to determine whether there is a difference in opinion between patients and orthopedic surgeons concerning the importance of specific symptoms of ankle OA and the impact on daily life and function.

Table 1: Validated Ankle scores used for Ankle osteoarthritis.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Validated for</td>
<td>Common foot and ankle complaints</td>
<td>General hindfoot problems</td>
<td>Isolated osteoarthritis of the ankle</td>
<td>Assess physical function of patients with musculoskeletal disorders participating in physical therapy</td>
<td>Ankle ligament reconstruction</td>
<td>Rheumatoid arthritis and general foot and ankle complaints</td>
</tr>
<tr>
<td>Type</td>
<td>Patient reported outcome</td>
<td>Clinician based outcome</td>
<td>Patient reported outcome</td>
<td>Patient reported outcome</td>
<td>Patient reported outcome</td>
<td>Patient reported outcome</td>
</tr>
<tr>
<td>Outcomes validated against</td>
<td>WOMAC SF-36</td>
<td>SF-36 FFI QUALY score</td>
<td>SF-36 WOMAC Single leg heel lifts</td>
<td>SF-36</td>
<td>Karlsson ankle function score</td>
<td>SF-36</td>
</tr>
</tbody>
</table>
**Hypothesis.** There is a significant difference between what patients and orthopedic surgeons regard to be clinically relevant symptoms of ankle OA and what patients and orthopedic surgeons judge to be the impact of ankle OA on daily life and function of these patients.

**Methods**

**Study design**

The study was performed in two parts. A modified Delphi method was used to gain the opinions of patient and orthopedic surgeons about ankle OA. The original Delphi method was modified because the focus was on patient opinions instead of expert opinions, as described originally[32,33].

<table>
<thead>
<tr>
<th>Table 2: Demographics of different Focus groups.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus Group 1</td>
</tr>
<tr>
<td>N=4</td>
</tr>
<tr>
<td>Gender:</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Age (years)</td>
</tr>
<tr>
<td>Grade of OA</td>
</tr>
<tr>
<td>Grade 2</td>
</tr>
<tr>
<td>Grade 3</td>
</tr>
</tbody>
</table>

Focus groups were used for acquiring patient opinions on ankle OA and its impact on daily life. Three focus groups of patients were composed. A patient focus group consisted of three to four patients with different degrees of ankle OA (van Dijk grade 2 or 3) and two researchers (MB, CH) one of which was the interviewer (MB) (Table 2)[34]. Focus group meetings were held at the hospital, to create an informal atmosphere each 2 h session, was started with a short coffee break to get acquainted. Eleven patients participated. Patients were recruited at our outpatient clinic using specified inclusion and exclusion criteria (Table
The conservative treatment of ankle osteoarthritis

3). Written, informed consent was obtained from each patient prior to enrolment in the study. Six Questions were asked during the focus group meetings, the questions were composed with the aid of existing outcome scores, i.e. AOFAS, FAOS, FAAM, FFI, SF-36, AOS and VAS for Foot and Ankle Pain (Table 4).

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patients of either gender, between 18 and 75 years of age</td>
</tr>
<tr>
<td>• OA pain in the ankle</td>
</tr>
<tr>
<td>• Diagnosed with primary or secondary ankle OA at least 6 months before inclusion</td>
</tr>
<tr>
<td>• Ankle OA based on radiographs (van Dijk grade 2 or higher)</td>
</tr>
<tr>
<td>• Subjected to at least one type of conservative treatment</td>
</tr>
<tr>
<td>• An active lifestyle and in general good health</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Other joint complaints especially of the same limb (e.g. hip or knee osteoarthritis) that could interfere with a clear judgment of their ankle complaints</td>
</tr>
<tr>
<td>• Other factors assessed by the investigators that may limit the ability of the patient to perform necessary study evaluations (e.g. rheumatoid arthritis, cardiovascular impairment)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Topic</th>
<th>Question(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>What do you consider the most discomforting about having ankle osteoarthritis?</td>
</tr>
<tr>
<td>Function</td>
<td>What effect has your arthritis on your walking ability? What function is affected by having ankle OA, e.g. think about descending or ascending stairs?</td>
</tr>
<tr>
<td>Daily life activities</td>
<td>How does the osteoarthritis interfere in your daily life, work or sport activities?</td>
</tr>
<tr>
<td>Goals of treatment</td>
<td>What is your main goal in treating your ankle OA?</td>
</tr>
<tr>
<td>Positive effects of conservative treatment</td>
<td>What treatment would you recommend to your peer patients?</td>
</tr>
<tr>
<td>Negative effects of conservative treatment</td>
<td>What would you like to change in the conservative treatment you were subjected to?</td>
</tr>
</tbody>
</table>
For the expert opinions, six foot and ankle expert orthopedic surgeons having a daily practice of more than 50% foot and ankle surgery were interviewed (MB) using a structured questionnaire (Table 5). The results from the interviews and focus groups were combined to develop 32 statements (Table 6).

Table 5: Outline of the questions asked during the interviews of the Orthopedic surgeons.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Question(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing outcome scores</td>
<td>What do you think of current outcome scores for Ankle OA, do you use them and if so which one, what is missing in these outcome scores?</td>
</tr>
<tr>
<td>Symptoms</td>
<td>What do you consider the most important symptom of ankle OA, what do you think of the following symptoms: stiffness, swelling, unstable sensation or a locking/clicking sensation, how would you monitor these symptoms?</td>
</tr>
<tr>
<td>Function</td>
<td>What is the effect of ankle OA on the walking ability of ankle OA patients. What functions are likely to be affected by ankle OA? How would you like to judge the effects of treatment of ankle OA considering function?</td>
</tr>
<tr>
<td>Daily life</td>
<td>What is the impact of ankle OA on daily life. Do these items need to be addressed in an outcome score for ankle OA and how?</td>
</tr>
<tr>
<td>(Work, sports and quality of life)</td>
<td></td>
</tr>
<tr>
<td>Conservative treatment</td>
<td>What are the first steps in your practice, when you treat a patient with ankle OA, are you familiar with hyaluronic acid injections for ankle OA, do you use corticosteroids and if so when. What do you consider the main goal of your treatment?</td>
</tr>
</tbody>
</table>
Table 6: The thirty-two formulated statements.

<table>
<thead>
<tr>
<th>Symptoms:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The most important complaint is pain</td>
<td></td>
</tr>
<tr>
<td>2. Stiffness causes no inconvenience</td>
<td></td>
</tr>
<tr>
<td>3. Stiffness hinders performing daily chores</td>
<td></td>
</tr>
<tr>
<td>4. Dancing is more painful than walking</td>
<td></td>
</tr>
<tr>
<td>5. There is often an unstable sensation in the ankle</td>
<td></td>
</tr>
<tr>
<td>6. Gaining weight is caused by ankle osteoarthritis</td>
<td></td>
</tr>
<tr>
<td>Function:</td>
<td></td>
</tr>
<tr>
<td>7. Walking 1km quickly is easy</td>
<td></td>
</tr>
<tr>
<td>8. Walking 2 km in a quiet manner is easy</td>
<td></td>
</tr>
<tr>
<td>9. Descending stairs is more difficult than ascending</td>
<td></td>
</tr>
<tr>
<td>10. Walking on uneven terrain is more difficult than on a flat surface</td>
<td></td>
</tr>
<tr>
<td>11. Walking on a slope is more difficult than on a flat road.</td>
<td></td>
</tr>
<tr>
<td>12. Standing still is difficult</td>
<td></td>
</tr>
<tr>
<td>13. Squatting is difficult</td>
<td></td>
</tr>
<tr>
<td>14. Ascending a stair is more difficult than descending</td>
<td></td>
</tr>
<tr>
<td>Daily life:</td>
<td></td>
</tr>
<tr>
<td>15. Strenuous household duties like vacuuming/cleaning windows are impossible</td>
<td></td>
</tr>
<tr>
<td>16. Light household duties like dish washing are easy</td>
<td></td>
</tr>
<tr>
<td>17. Driving is more difficult</td>
<td></td>
</tr>
<tr>
<td>18. As a result of the OA complaints the job needs to be adjusted</td>
<td></td>
</tr>
<tr>
<td>19. Sprinting is impossible</td>
<td></td>
</tr>
<tr>
<td>20. Jumping is impossible</td>
<td></td>
</tr>
<tr>
<td>21. Performing sport activities is impossible</td>
<td></td>
</tr>
<tr>
<td>22. Cycling and swimming are still possible</td>
<td></td>
</tr>
<tr>
<td>23. The complaints affect my temper</td>
<td></td>
</tr>
<tr>
<td>24. A good outcome score contains 10-40 questions</td>
<td></td>
</tr>
<tr>
<td>Conservative treatment:</td>
<td></td>
</tr>
<tr>
<td>25. The use of NSAID’s diminishes complaints</td>
<td></td>
</tr>
<tr>
<td>26. Hyaluronic acid diminishes pain</td>
<td></td>
</tr>
<tr>
<td>27. Hyaluronic acid improves walking abilities</td>
<td></td>
</tr>
<tr>
<td>28. A brace improves a stable sensation</td>
<td></td>
</tr>
<tr>
<td>29. Using orthopedic shoes improves walking abilities</td>
<td></td>
</tr>
<tr>
<td>30. There are minor effects of physical therapy</td>
<td></td>
</tr>
<tr>
<td>31. NSAID’s diminish swelling</td>
<td></td>
</tr>
<tr>
<td>32. Manual therapy gives a temporary pain relief</td>
<td></td>
</tr>
</tbody>
</table>
The second part of the method contained the analysis of the difference in opinion between orthopedic surgeons and patients by comparing the answers to the 32 statements. These statements were presented to 40 patients and 40 orthopedic surgeons.

The patient group included the eleven patients that participated in the focus groups. The other 29 were recruited in the same way as described in the first part (Table 7). They all consented accordingly. The orthopedic surgeon group included five surgeons that participated in the interviews. One of the interviewed surgeons was not able to answer the statements. The other 35 orthopedic surgeons were approached at a meeting of the Dutch National Foot and Ankle Society. Orthopedic surgeons that attended this meeting have a daily practice that consists of more than 40% of foot and ankle surgery. Each statement could be scored with: agree, disagree, no opinion / not applicable.

The study protocol, patient information and patient consent form were approved by the internal review board of the Sint Maartenskliniek, Nijmegen.

<table>
<thead>
<tr>
<th>Patients</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Age (years)</td>
<td>Mean 57.6</td>
<td>Mean 56.1</td>
</tr>
<tr>
<td></td>
<td>(26-75)</td>
<td>(28-75)</td>
</tr>
</tbody>
</table>

| Grade 2 | N=24 | 12 | 12 |
| Grade 3 | N=16 | 8  | 8  |

Outcome measures

The primary outcome was the difference in scoring the statements concerning symptoms, daily life and function between patients and orthopedic surgeons.

Secondary outcomes were:
- the difference in scoring of the statements about the treatment options of ankle OA between patients and orthopedic surgeons
- the difference in scoring of the statements between grade 2 and 3 patients
Statistical analysis

Sample size calculation was based on the difference between patients and orthopedic surgeons in the scores of the 32 statements (difference of proportion). A difference of 30% in consensus (weak consensus) is considered relevant \[^{35}\]. Based on a power of 80% and a two-sided alpha of 0.05, 40 individuals in each group were needed.

The statistical analysis of the data was performed using Stata 13 (StataCorp LP, Texas)

A chi-squared analysis was performed comparing orthopedic surgeons to patients. A sub analysis was carried out comparing patients with grade-2 OA to patients with grade-3 OA; this statistical analysis was performed using a Fisher’s exact test. Either difference in outcome was considered significant if p< 0.05.

Results

Primary outcome: symptoms, daily life and function

Patient focus group interviews

Patients considered pain during weight bearing (n=11) and pain at rest (n=7) the most important complaints (Table 8). The most important impairment in walking was walking on uneven ground, walking a distance and descending stairs (n=10). Daily life was changed. Many patients were unable to perform the sports they liked to play. Patients had to adjust their work, being more sedentary (Table 8).
Table 8: Ranking the most common answers of the 11 focus group patients to the 6 questions asked.

<table>
<thead>
<tr>
<th>1. Symptoms:</th>
<th>Pain during weight bearing</th>
<th>Pain at rest</th>
<th>Swelling</th>
<th>Unstable sensation</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=11</td>
<td>N=7</td>
<td>N=6</td>
<td>N=6</td>
<td>Starting pain</td>
<td>Pain after walking</td>
</tr>
<tr>
<td>What do you consider the most discomforting about having ankle osteoarthritis?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Function:</th>
<th>Walking on uneven ground</th>
<th>Walking a distance</th>
<th>Descending stairs</th>
<th>Running</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=11</td>
<td>N=10</td>
<td>N=10</td>
<td>N=8</td>
<td>Difficulty standing still</td>
<td>Walking on a hill</td>
</tr>
<tr>
<td>What function is affected by having ankle OA, e.g. think about descending or ascending stairs?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Daily life:</th>
<th>Unable to perform favorite sport</th>
<th>Work has to be adjusted</th>
<th>Difficulty performing daily chores</th>
<th>Trouble driving a car</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=8</td>
<td>N=6</td>
<td>N=5</td>
<td>N=3</td>
<td>Not able to attend a social activity</td>
<td>Getting laughed at due to the affected walking pattern</td>
</tr>
<tr>
<td>How does the osteoarthritis interfere in your daily life, work or sport activities?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Goals of treatment:</th>
<th>Less pain</th>
<th>Walking a distance</th>
<th>Able to hike</th>
<th>Normalizing daily life</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=6</td>
<td>N=3</td>
<td>N=3</td>
<td>N=2</td>
<td>Less swelling</td>
<td>Taking part in social activities</td>
</tr>
<tr>
<td>What is your main goal in treating your ankle OA?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Positive effects:</th>
<th>Hyaluronic acid injections</th>
<th>Wearing a brace</th>
<th>Using Nsaids</th>
<th>Crutches/cane</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=6</td>
<td>N=5</td>
<td>N=3</td>
<td>N=3</td>
<td>Wearing an inlay</td>
<td>Use a stiff soled shoe</td>
</tr>
<tr>
<td>What treatment would you recommend to your peer patients?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. Negative effects:</th>
<th>No change</th>
<th>Less pain after hyaluronic acid injection</th>
<th>Lack of information about the disease</th>
<th>Swelling of ankle in orthopedic shoe</th>
<th>Other; Stomach ache due to the use of Nsaid’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=6</td>
<td>N=3</td>
<td>N=3</td>
<td>N=3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Orthopedic Surgeon interviews

Pain and stiffness are considered the most important complaints of ankle OA by orthopedic surgeons. Stiffness is thought to impair gait and warrant the need for shoe adjustments.

A reduced walking distance is considered the most important effect of ankle OA. Running and jumping were considered the most strenuous activities for the ankle. The orthopedic surgeons all agreed that the basic mood is changed once one suffers from ankle OA.

Statements

The results from the interviews were used to develop statements 1-24 that reflect the opinions for symptoms, daily life and function (Table 6). Statements 1-6 concern ankle OA symptoms. Statements 7-14 address the effects of the disease on function. Statements 14-23 question the effects on daily life.

For symptoms a statistically significant difference between patients and surgeons was found for the statements “stiffness hinders performing daily chores” (statement 3, p<0.0001), “there is often an unstable sensation in the ankle” (statement 5, p<0.0001) and “gaining weight is caused by ankle osteoarthritis” (statement 6, p=0.001) (Figure 1).

For function a significant difference was found for “walking 2 km in a quiet manner is easy” (statement 8, p=0.022) and “standing still is difficult” (statement 12, p=0.0017) (Figure 1).

For daily life a significant difference was found for “Strenuous household duties are impossible” (statement 15, p=0.025), “as a result of OA the job needs to be adjusted” (statement 18, p=0.006) and “jumping is impossible” (statement 20, p=0.007) (Figure 1).

On the statements not mentioned, there was no statistically significant difference between patients and orthopedic surgeons (Figure 1).
The impact of ankle osteoarthritis. The difference of opinion between patient and orthopedic surgeon

Figure 1: The difference in agreement and disagreement between patients and orthopedic surgeons

Where the sum of agreement and disagreement is less than 100\%, the remainder for the statement is "no opinion". Statements that showed a statistical significant difference between orthopedic surgeons and patients P < 0.05 are made bold and marked with an asterix *.

For statement 25-32 no statistical analysis was undertaken.
Secondary outcomes: treatment

Patient focus group interviews

The most important goal of treatment was considered pain relief (n=6). Hyaluronic acid injections (n=6) were considered the most effective conservative treatment besides wearing a brace (n=5)(Table 8).

Orthopedic surgeon interviews

The main treatment goal was considered pain relief, other goals were improving quality of life, resuming sport activities and to reduce sick leave. All surgeons agreed that the treatment a patient receives is mainly based on the patient’s demands.

Steps in treating patients with ankle OA consisted of explaining the problem to the patient, advising adjustments of activities of daily life, like cycling instead of walking and starting to take a painkiller, e.g. Tylenol or acetaminophen. Other treatments that were proposed in random order were shoe adjustments, physical therapy for gaining motion, strengthening muscles and improving proprioception. A cortisone injection is mentioned as an option for temporary pain relief in case of severe OA.

Statements

Statement 25-32 reflect the opinion of patients and orthopedic surgeons on conservative treatments (Table 6). For these statements no statistical analyses were performed, as the majority of patients had no opinion about conservative treatments. Instead an analysis was done to search for consensus, among the orthopedic surgeons, about several aspects of conservative treatment. Orthopedic surgeons consider NSAID’s useful to reduce complaints. However, for the reduction of swelling by using NSAID’S, there was no consensus between the surgeons (Figure 1). There was consensus to use braces for stability and orthopedic shoes to improve walking abilities. The statements concerning hyaluronic acid supplements and manual therapy as well as physical therapy showed no consensus.
Grade-2 and grade-3 OA subgroup analysis

No significance differences were found between grade-2 and -3 OA patients except for statement 3 “stiffness hinders performing daily chores”. About 22% of the grade-2 patients disagreed compared to 0% of the grade-3 patients. None of the grade-2 patients and about 20% of the grade-3 patients had no opinion (p=0.016).

Discussion

This qualitative study evaluated the opinions of patients and surgeons about several topics concerning ankle OA by using a modified Delphi method in two rounds. Much of the outcome of the interviews in the focus groups and of the orthopedic surgeons was not surprising. Pain is considered the most important by patients and surgeons. An important item that was mentioned by the patient group was their difficulty performing certain activities, doing groceries for instance, due to the inability to stand still for a certain amount of time or driving a car because of pain in the ankle. Besides pain reduction, patients want to be able to participate in daily life, sport activities, hiking and so on. Walking distance and pace are considered important by patients and orthopedic surgeons. Some interesting differences were observed between orthopedic surgeons and patients in scoring the 32 statements. A prominent one is the difference in opinion towards statement 3, “stiffness hinders performing daily chores”. Patients really feel that ankle stiffness is hindering them in performing daily activities. Orthopedic surgeons thought this would be less the case than the patients (77% vs. 42.5%). Another interesting discrepancy is with statement 5: “there is often an unstable sensation in the ankle”. Patients report an unstable sensation in their ankle. This is less appreciated by orthopedic surgeons (80% vs. 32.5%). Orthopedic surgeons are less aware that ankle OA makes it difficult to stand still compared to patients (30% vs.60%).

Jumping was also less appreciated, as 72.5% of orthopedic surgeons agreed and 97.5% of the patients agreed that jumping is impaired. These results demonstrate that clinicians under appreciate the symptoms and impact of ankle OA. This might influence the choice of treatment. On the other hand, patients were more positive considering their capabilities than the orthopedic surgeons. More people are able to perform strenuous
household work than the surgeons thought. Apparently fewer jobs needed to be adjusted. Even so patients are more realistic than surgeons commonly think, when asked about gaining weight. Patients are less intended to blame this on their ankle OA (65% of the surgeons agreed compared to 32.5% of the patients).

Orthopedic surgeons have different opinions about the usefulness of certain modalities of conservative treatment. An explanation can be the lack of scientific evidence for most of these treatments.

The outcome measures that are currently used (Table 1) are too general and do not meet the demands and expectations of the individual patient. An item that is missing is walking pace. This is not a scoring item in any of these scores. The AOS questionnaire questions for instance the difficulty of walking 400 meters or more. One can imagine that patients with a low grade of ankle OA are able to walk 3 km, but it might be more informative to know how they do this, i.e. walking slowly with a stick or walking fast without a walking aid. A recently more in popularity gaining score;the Manchester-Oxford Foot Questionnaire (MOXFQ) might me promising in this perspective. This score was originally designed to evaluate the results of foot and ankle surgery and was initially assessed in patients undergoing surgery for hallux valgus. At this point it is not tested and used for evaluating the conservative treatment of ankle OA. Some items in this score are interesting though ; item 4: I walk slowly because of pain in my foot/ankle or item 5: I have to stop and rest my foot/ankle because of pain. It could be difficult to use these items in the evaluation of the conservative treatment of ankle OA, again they might be to general. What kind of improvement does the patient or physician expect [36,37]?

Descending or ascending one staircase might be easy. However, ascending two or three might be impossible. Work is not an item in the outcome measures that are used currently, except for the AAOS score. However, the specific question in the AAOS questionnaire only informs if there is an interference with normal work and house work. It gives no information about the aspect that causes this interference. The question is not specific because the two items are asked in one question. Work is a very important item, since most low-grade ankle OA patients are of working age. One can imagine that if one has difficulty standing still, a job has to be adjusted to partly sedentary work, for instance [12-19]. The MOXFQ has item 13: The pain in my foot/ankle prevents me from carrying out
my work/every day activities. Again the same problem exists as with the AAOS score, two items are asked in one question and they lack specificity, it might be difficult to improve on this item, using conservative treatment.

There are some limitations of this study. The statements concerning the benefit of conservative therapies cannot be evaluated properly, because many patients answered that these statements did not apply to them or that they had no opinion regarding these statements. It was to be expected that not all patients have a personal experience with all conservative treatment options. These statements were excluded in the comparison between surgeons and patients.

A substantial difference in the opinions on the impact of ankle OA between orthopedic surgeons and patients was demonstrated. If the outcome of conservative treatment of ankle OA is to be based on PROMs, these results advocate incorporating the needs and demands of the individual patient.

If a PROM is to be designed from scratch, thereby not considering current PROM’s, then the outcome of this study provides the elements that could be incorporated in a PROM specifically for patients with ankle OA.

This study showed that next to pain, the participation in different kind of activities is a concern to patients. Besides a VAS-score for pain, achieving functional goals might be a worthy addition to a new PROM. The Global Attainment Scaling (GAS) is such a tool, which is able to evaluate a specific goal of a patient and overall compares the outcome scales of different patients. This scale is a part of the International Classification of Functioning Disability and Health (ICF), developed by the World Health Organization, which is used, amongst others, by rehabilitation doctors and physical therapists to classify patient’s functioning.[38-40]

The next step based on these recommendations is to create, test and validate a new PROM for ankle OA patients.
References


