Clinical aspects of hand osteoarthritis : are erosions of importance?

Kwok, W.Y.

12

ROLE OF RHEUMATOLOGY CLINICAL NURSE SPECIALISTS IN OPTIMIZING THE MANAGEMENT OF HAND OSTEOARTHRITIS DURING DAILY PRACTICE IN SECONDARY CARE: AN OBSERVATIONAL STUDY

W.Y. Kwok[1], M. Kloppenburg[1], L.J.J. Beaart- van de Voorde[1], T.W.J. Huizinga[1], T.P.M. Vliet Vlieland[1]

[1] Leiden University Medical Center, Leiden, the Netherlands, Department of Rheumatology

Published in J Multidiscip Healthc. 2011;4:403-11.

ABSTRACT

Background

The purpose of this study was to describe the effectiveness of a single one-hour consultation by a clinical nurse specialist in patients with hand osteoarthritis during daily rheumatology practice in secondary care.

Methods

Consecutive patients diagnosed by rheumatologists with primary hand osteoarthritis and referred to the clinical nurse specialist were eligible for entry into this study. The standardized 1-hour consultation consisted of assessments and education on hand osteoarthritis by a clinical nurse specialist. Before and 3 months after the consultation, assessments were done to evaluate treatment (use of assistive devices, acetaminophen), health-related quality of life (physical component summary score (PCS) of Short-Form 36) and hand pain/function (Australian/Canadian Osteoarthritis Hand Index, AUSCAN). Paired t-tests and McNemar tests were used to analyze differences between baseline and follow-up. Satisfaction was measured after consultation at follow-up using a multidimensional questionnaire comprising 13 items (rated on a 4-point scale).

Results

A total of 439 patients were referred, with follow-up data available in 195 patients, comprising 177 (87%) females, and of mean age 59 years (standard deviation 9.0). After consultation, the proportions of patients using assistive devices or acetaminophen increased significantly from 30% to 39% and from 35% to 49%, respectively. PCS improved significantly (P = 0.03) whereas the AUSCAN hand pain/function showed no significant differences compared with baseline (P values 0.52 and 0.92, respectively). The proportions of patients reporting to be satisfied or fully satisfied ranged from 78% to 99 % per item.

Conclusion

A single, comprehensive, standardized assessment and education by a clinical nurse specialist improved the physical dimension of helath-related quality of life hand osteoarthritis. Most patients were satisfied with the consultation. Further controlled trials are needed to determine the added value of the clinical nurse specialist in care for hand osteoarthritis.

INTRODUCTION

Hand osteoarthritis (OA) is a common musculoskeletal disorder and considered as a mild disease[1]. However, the clinical burden in secondary care is high as reflected by considerable pain, decreased grip force and joint mobility and impaired functional ability experienced by patients[2,3]. Health-related quality of life (HRQoL) is lowered compared with normal controls[2] and is similar to patients with rheumatoid arthritis, as is pain and disability[3]. The costs due to hand OA are expected to rise due to the ageing of persons in the coming decades, together with a higher burden to the working community caused by associated mobility, disability and occupational problems[4,5]. Despite the great impact on society, no cure is available for hand OA. However, patients can be offered medication, such as analgesics, or various non-pharmacological interventions which have been found to be effective, including education on the condition and treatment options, splints, assistive devices and exercise programs[6-9]. In daily clinical practice, the delivery of non-pharmacological care in OA has been found to be suboptimal in many patients[10,11]. A considerable proportion of patients with hand OA are referred to a rheumatologist if treatment advice provided by primary care is not sufficiently effective[12,13] and/or if there is doubt about the (inflammatory) origin of their hand complaints.

This specific group of secondary care patients with hand OA, who are seeking help for their considerable pain and disability burden, may be referred to specific multidisciplinary rehabilitation programs of several visits to the hospital during several weeks. These programs were found to be effective, but are time-consuming and expensive[7,14]. In these cases, referral to a clinical nurse specialist could be considered, especially if this would be an easy and cost-effective way to achieve comprehensive and patient friendly management of hand OA.

Clinical nurse specialists are increasingly used in rheumatology, and their role continues to develop. They are undertaking activities such as examining the musculoskeletal system, formulating and carrying out a plan of disease management, assessing disease status, managing symptoms, recommending changes of drug treatment, making referral to other health professionals, addressing physical, psychological and social problems, and assessing knowledge deficits[15]. In rheumatoid arthritis, care delivered by clinical nurse specialists has a similar long-term clinical outcome to that of an inpatient or day patient multidisciplinary team care program, at significantly lower costs[16-18].

All of these observations underscore the need to examine further the role of the rheumatology clinical nurse specialist in the care of patients with hand OA. Until present, studies on the value of short-term care by the clinical nurse specialist in secondary care patients with hand OA are not yet available. This proof-of-concept study, as part of standard usual care in a hospital setting in daily practice, explored changes of health-related quality of life (HRQoL), pain and daily activities of patients with hand OA 3 months after consultation and education by a clinical nurse specialist and their determinants, to what extent patients followed the advices given by the clinical nurse specialist and their satisfaction with this form of care. Moreover, we studied to what extent patients who completed the intervention differed from those who did not.

PATIENTS AND METHODS

Patient population

This study was conducted at the outpatient clinic of the Department of Rheumatology of the Leiden University Medical Center, Netherlands from August 2005 until April 2009. All patients diagnosed by the rheumatologist to have primary hand OA were offered a referral to the clinical nurse specialist as a part of standard usual care for OA patients, and consecutively included in the study. All clinical diagnoses of primary hand OA by the rheumatologist were verified by the principal investigator (WK) based on reviewing the medical chart. Patients with inflammatory rheumatic diseases were excluded.

The consultation provided by the clinical nurse specialist was part of standard usual care and was conducted in compliance with the Good Clinical Practices protocol and Declaration of Helsinki principles. In accordance with the Dutch law, a formal approval from an ethical committee is not required for this kind of project. Patients gave their consent to participate after being informed verbally about the study protocol.

Consultation by the clinical nurse specialist

The nurse consultation was developed and based on existing Dutch and international guidelines for the management of knee and hip OA[12,13,19]. Specific guidelines for the management of hand OA were not available at the start of the study. The consultation by the clinical nurse specialist consisted of education on hand OA, its treatment, and lifestyle advices (joint protection, exercises, use of assistive devices) tailored to the individual patient's problems and needs. Advices on use of acetaminophen (first choice of analgesic in OA) and nonsteroidal anti-inflammatory drugs (NSAIDs) on demand were given. Furthermore, written information (brochures and an extensive booklet about OA in general with its therapeutic options) were given to patients[20]. If patients had complaints related to OA in other joint sites besides the hand (e.g. knee or hip), information and education about treatment and lifestyle was also given for these joint sites. Telephone follow-up was scheduled after a minimum of 12 weeks and a maximum 20 weeks after the first visit. During this telephone consultation, patients were asked if and to what extent they have followed the advices of the clinical nurse specialist. If needed, additional support to implement advices and/or referrals to a physical therapist, occupational therapist or other health care providers was provided in consultation with the rheumatologist. The clinical nurse specialist consultation was provided by four trained rheumatology clinical nurse specialists with ample experience in the management of patients with rheumatic diseases.

Assessments

Patients filled in standardized questionnaires about demographic characteristics, use of medication and non-pharmacological treatment regarding their hand function problem, HRQoL and self-reported pain and function before the visit with the clinical nurse specialist and after 3 months (after the telephone consultation), partly structured by the International Classification of Functioning, Disability and Health core sets for OA[21]. Sociodemographic and clinical data (e.g. age, height, weight, education level, paid

employment, marital status, smoking status) were collected. In addition, the highest education level was recorded (lower education, no formal education; primary school or lower vocational education; higher education, university or higher vocational education). Current medication (e.g. acetaminophen and NSAIDs) and non-pharmacological treatment (use of helping aids/devices e.g. splints or adaptations in forks, knives and spoons) in hand OA was also collected. Information about the use of physical therapy in general was sought as well. After the telephone consultation, patients were asked to fill in the questionnaire and a patient satisfaction questionnaire about the consultation. The mean follow-up time was based on the dates of the follow-up assessments.

Health-related quality of life (HRQoL)

HRQoL of hand OA patients was measured by the Short-Form 36, which is translated and validated in the Dutch language[22]. This is a widely used generic health questionnaire with 36 questions, of which eight subscales can be formed: physical function (10 questions), role limitations due to physical health problems (4 questions), bodily pain (2 questions), general health (5 questions), vitality/energy (4 questions), social functioning (2 questions), role limitations due to emotional problems (3 questions) and mental health (5 questions). In the original scoring, scores range from 0 to 100, whereas a low score represents worse health status.

From these subscales, summary component scores for physical health (PCS) and mental health (MCS) can be calculated. Because each subscale has a different minimum-maximum score, norm-based scoring was introduced. In norm-based scoring, each scale is scored to have the same average (mean: 50) and the same standard deviation (SD: 10), meaning each point equals one-tenth of a standard deviation[23]. The main advantage of norm-based scoring is the simplified interpretation. In this study, scores of a Dutch general population were used to standardize our scores in order to apply the norm-based scoring[22]. Scores of both subscales and summary scales were calculated.

Self-reported pain and function in hands

Self-reported pain, stiffness and function in hand OA patients were measured with the disease-specific questionnaire Australian/Canadian Osteoarthritis Hand Index (AUSCAN) Likert scale 3.1, which is reliable and validated in patients with symptomatic hand OA[24]. It contains five items for pain, one for stiffness and nine for physical functioning using a 48-hour time frame. Each item is scored from 0 (none) to 4 (extreme). Higher scores indicate worse pain, stiffness and more functional limitations. Scores for AUSCAN subscales have different ranges (pain subscale 0-20, stiffness subscale 0-4, function subscale 0-36, total score 0-60).

Patient satisfaction questionnaire

The design of the questionnaire was extracted from a multidimensional patient satisfaction questionnaire, based on a questionnaire that has been developed to evaluate the satisfaction with multidisciplinary care in rheumatoid arthritis patients[25]. The items and domains of the satisfaction questionnaire have been validated in

patients with rheumatoid arthritis with good internal consistency[18]. The questionnaire in the present study comprised four domains with 13 statements on the clinical nurse specialist's knowledge (two items), the provision of information (five items), empathy (two items) and overall usefulness of the intervention (four items). Patients were asked whether they agree or disagree with the statements using a 5-point Likert scale (0=totally disagree, 1= disagree, 2=disagree/agree, 3=agree, 4=totally agree). Reliability analysis of the satisfaction questionnaire in the present study showed that Cronbach's alpha was 0.94 for the total questionnaire and 0.83, 0.88, 0.81 and 0.82 for the domains knowledge, information, empathy and usefulness, respectively.

Statistical analysis

Data were analyzed by using SPSS, version 17 (SPSS Inc, Chicago, Illinois).

Comparisons were made of demographic data of hand OA patients with and without available follow-up data after 3 months (after telephone consultation). Independent t-tests were used for continuous variables and Chi-square tests for proportions.

A paired t-test was performed to analyze differences in AUSCAN pain, function, PCS and MCS between baseline and follow-up. The McNemar test was used to analyze changes with respect to the usage of helping aids, acetaminophen, NSAIDs and physical therapy between baseline and after the telephone consultation.

Probability plots were made for the difference of Short Form-36 PCS, AUSCAN pain and function between baseline and follow-up to investigate how many patients improved or deteriorate after 3 months. The cut-off levels for improvement was based on the Short Form-36 manual and Minimal Clincally Important Improvement for AUSCAN pain/function[23,26], which was > 5, > 1.5 and > 1.25 points for Short Form-36 PCS, AUSCAN pain and function, respectively and <-5, <-1.5 and < -1.25, respectively for deterioration. Patients with differences between these levels were defined no change after 3 months. The items per domain in the patient satisfaction questionnaire were summated and mean (SD) values were calculated.

RESULTS

Patient population with hand OA

In total, 439 patients with a verified diagnosis of hand OA were referred to the clinical nurse specialist during the study period. Baseline data were available for all these patients, and clinical follow-up data were available for 195 patients (44%). The sociodemographic and clinical characteristics of the patients are shown in Table 1. Of the 195 patients who returned the questionnaires, 177 (87%) were female, and their mean age was 59 years (SD 9.0)). In 49% of these patients, pain in the first carpometacarpal joint was indicated at baseline. Pain in the interphalangeal joints was reported in 83%. The mean follow-up time was 18.9 weeks (SD 7.5).

Table 1 also shows the sociodemographic and clinical characteristics of 244 patients who did not return the questionnaires. The majority of these persons were contacted by the clinical nurse specialist later by telephone, but reasons for nonresponse of the questionnaires were not recorded.

Table 1: Demographic and clinical characteristics of 439 patients with hand OA at baseline (195 with both baseline and follow up data and 244 with baseline data only).

Demographic characteristic in number or mean	Persons with baseline and follow-up n=195, (%)	Persons with only baseline data (n= 244)	Mean difference (95%CI)	P-value*
Female	177 (87)	228 (89)	2.6% (-2.4 to 8.0)	0.43
Age, years (SD)	59 (9.0)	62 (10.2)	3.2 (1.4 to 5.0)	**0.001**
BMI, >25 kg/m^2	105 (60)	109 (59)	-1.1 (-11.2 to 9.1)	0.84
Marital status (yes/no)	136 (71)	149 (65)	-5.4% (-14.3 to 3.5)	0.24
Employment (yes/no)	78 (42)	64 (31)	-11.5% (-20.9 to -0.02)	**0.02**
Low education (yes/no)	62 (33)	87 (42)	8.8%(-0.6 to 18.3)	0.07
Current smoking (yes/no)	25 (14)	36 (18)	4.0% (-32.6 to 11.3)	0.28
OA at 2 or more joint sites (yes/no)	89 (46)	121 (50)	4.0% (-5.0 to 13.3)	0.41
Use of assistive devices (yes/no)	57 (30)	107 (47)	16.9% (7.7 to 26.1)	**<0.001**
Use of acetaminophen (yes/no)	69 (36)	100 (45)	8.5% (-1.0 to 18.0)	0.23
Use of NSAID (yes/no)	74 (39)	69 (31)	-8.4% (-17.7 to 0.1)	0.07
Use of physical therapy (yes/no)	50 (27)	65 (30)	2.6% (-6.3 to 11.5)	0.54
AUSCAN pain, range 0-20 (SD)	9.2 (3.9)	9.9 (4.5)	0.7 (-0.2 to 1.5)	0.12
AUSCAN stiffness, range 0-4 (SD)	1.90 (1.0)	1.95 (1.1)	0.05 (-0.16 to 0.26)	0.66
AUSCAN function, range 0-36 (SD)	15.6 (8.0)	17.3 (8.9)	1.7 (0.04 to 3.4)	**0.045**
AUSCAN total score, range 0-60 (SD)	26.5 (11.7)	28.8 (13.3)	2.3 (-0.09 to 4.8)	0.06
SF-36 PCS, range 0-100 (SD)	44.0 (7.8)	41.7 (8.9)	2.3 (0.6 to 4.0)	**0.007**
SF-36 MCS, range 0-100 (SD)	51.9 (9.0)	49.8 (10.7)	2.1 (0.1 to 4.1)	**0.038**

*= statistical significance with a significance level of $P \leq 0.05$.
SD, standard deviation; 95%CI, 95% confidence interval; NSAID, non-steroidal anti-inflammatory drug; AUSCAN, Australian/Canadian Osteoarthritis Hand Index; SF-36, Short-Form 36; PCS, physical component summary score of the SF-36; MCS, mental component summary score of the SF-36.

Patients with both baseline and follow-up data were significantly younger than patients with no follow-up data. In addition, in the group of patients with follow-up data significantly more patients were in paid employment. No differences were seen in sex, body mass index, marital status, education, current smoking status and OA involvement in two or more joint sites between the two groups.

Use of helping devices, analgesics and physical therapy

Patients with complete data used significant fewer assistive devices than those without follow-up (Table 1). Use of helping devices increased significantly by 10%, from 30% at baseline to 40% at follow-up after the consultation (Table 2). At baseline, no difference was seen in the use of acetaminophen in patients without follow-up compared to patients with complete data. In patients with follow-up data, acetaminophen use increased by 14% after the consultation, from 35% at baseline to 49% at follow-up (Table 2).

No significant changes were seen in the use of physical therapy after consultation, even if patients were stratified according to whether they had hand OA only, or had hand OA in combination with knee and/or hip OA. However, there was a mean difference in increase in use of physical therapy of 9.6% in patients who also had OA in the lower extremities (Table 2).

Self-reported pain and disability

Patients with follow-up data scored better on the AUSCAN function subscale at baseline than patients without follow-up data, and no differences were seen between the groups for self-reported pain and stiffness (Table 1). In the patients with follow-up data, no change was seen in any AUSCAN subscale after the consultation (Table 2). For AUSCAN pain, 48 patients improved, 99 showed no change and 48 patients deteriorated, whereas for AUSCAN function 57 patients improved, 33 showed no change and 54 deteriorated. Patients who deteriorated on these subscales after 3 months did not differ in demographic characteristics from those who did not deteriorate (data not shown).

Quality of life

At baseline, the physical health (reflected by PCS) was decreased in patients with hand OA when compared to the norm based Dutch population, whereas the mental health (reflected by MCS) was not decreased in comparison to the norm based Dutch population. Patients with only baseline data score significantly worse on the PCS and MCS than patients with complete data (Table 1). For the patients with follow-up data, the PCS and subscales 'role limitations due to physical health problems' and 'bodily pain' improved significantly, whereas neither the MCS nor its subscales showed significant differences after the clinic consultation and telephone consultation (Table 2). For the PCS, 57 patients improved after 3 months, 84 showed no change and 30 deteriorated. Patients who deteriorated on the PCS after 3 months did not differ in demographic characteristics from those who did not deteriorate (data not shown).

Table 2: Distribution of use pharmacological treatment, non-pharmacological treatment (in no. (%)) and health-related outcome measures (in mean (SD)) at baseline and follow-up in 195 hand OA patients with follow-up data.

Variable, number or mean	Baseline n=195 (%)	Follow-up n=195 (%)	Mean difference (95%CI)	P-value*
Use of assistive devices (yes/no)	57 (30)	74 (40)	10.2% (3.0 to 17.4)	**0.009**
Use of acetaminophen (yes/no)	69 (35)	94 (49)	14.0% (5.9 to 22.0)	**0.002**
Use of NSAID (yes/no)	74 (39)	67 (35)	-3.8% (-10.4 to 2.8)	0.26
Use of physical therapy (yes/all)	50 (27)	55 (29)	1.1% (-6.1 to 8.4)	0.40
Physical therapy in mono OA (%)	23 (23)	18 (18)	-5.3% (-14.0 to 3.4)	0.23
Physical therapy in poly OA (%)	27 (33)	37 (42)	9.6% (-2.4 to 21.5)	0.12
AUSCAN pain (SD)	9.2 (3.9)	9.0 (4.3)	-0.2 (-0.7 to 0.4)	0.52
AUSCAN stiffness (SD)	1.91 (1.0)	1.86 (1.0)	-0.05 (-0.2 to 0.1)	0.54
AUSCAN function (SD)	15.62 (8.1)	15.57 (7.9)	-0.05 (-1.1 to 1.0)	0.92
AUSCAN total score (SD)	26.4 (11.8)	25.7 (12.1)	-0.7 (-2.2 to 0.8)	0.35
SF-36 PCS (SD)	44.0 (7.8)	45.0 (8.2)	1.0 (0.07 to 1.9)	**0.034**
Physical Function (SD)	47.0 (8.6)	46.7 (8.9)	-0.3 (-1.1 to 0.5)	0.44
Role limitations due to physical health problems (SD)	45.0 (10.3)	47.2 (10.4)	2.2 (0.7 to 3.7)	**0.004**
Bodily pain (SD)	43.4 (6.7)	44.4 (7.4)	1.0 (0.4 to 2.0)	**0.042**
General Health (SD)	48.0 (6.6)	47.7 (6.6)	-0.2 (-0.9 to 0.5)	0.51
SF-36 MCS (SD)	51.9 (9.0)	51.6 (9.7)	-0.3 (-1.4 to 0.8)	0.57
Vitality/energy (SD)	47.6 (9.2)	47.7 (8.6)	0.1 (-0.8 to 1.1)	0.77
Social functioning (SD)	49.0 (9.1)	49.7 (9.1)	0.7 (-0.4 to 1.8)	0.23
Role limitations due to emotional problems (SD)	50.7 (9.9)	50.2 (10.8)	-0.5 (-2.0 to 0.9)	0.46
Mental health (SD)	50.8 (8.6)	50.8 (9.1)	0.02 (-0.9 to 0.9)	0.97

*= statistical significance with a significance level of $P \leq 0.05$.
SD, standard deviation; 95%CI, 95% confidence interval; NSAID, non-steroidal anti-inflammatory drug; mono OA, in hand OA patients only; poly OA, hand OA patients, combined with knee or hip OA; AUSCAN, Australian/Canadian Hand Osteoarthritis Index; SF-36, Short-Form 36; PCS, physical component summary score of the SF-36; MCS, mental component summary score of the SF-36.

Patient satisfaction questionnaire

Since only one person indicated 'not fully satisfied' on several questions, the answers 'not fully satisfied' and 'not satisfied' were combined into one category. This was also done with the answers of 'fully satisfied' and 'satisfied'. For all 13 statements of the satisfaction questionnaire on the quality of the consultation, 125 (78%) or more of the patients were satisfied or fully satisfied (Table 3). The means scores of summation of items per domain and were shown in Table 4. The overall satisfaction report mark for the clinical nurse specialist (range 0-10) was 8.0 (SD 1.0).

Table 3: Distribution of answers given on the questions about the satisfaction of the visit to the clinical nurse specialist (CNS) in 195 patients with hand osteoarthritis (missing n= 32).

Question	Fully satisfied*, in no. (%)	Not satisfied**, in no. (%)	Do not know, in no. (%)
CNS is informed about the newest developments in the treatment of OA	125 (78%)	0 (0%)	36 (22%)
I had the impression that the CNS had a lot of knowledge about OA and its treatment	151 (93%)	3 (2%)	9 (6%)
CNS gave me clear explanation about how to cope with OA in daily life	158 (98%)	2 (1%)	2 (1%)
CNS gave me exactly the information I needed	146 (91%)	4 (3%)	10 (6%)
I received sufficient information about OA	149 (92%)	0 (0%)	13 (8%)
I was informed sufficiently about the treatment of OA	127 (79%)	4 (3%)	29 (18%)
Information I received was set up to what I found important	148 (91%)	2 (1%)	12 (7%)
Written information was clear and easy to understand	156 (98%)	1 (1%)	1 (1%)
CNS sensed well what having OA means to me	139 (87%)	1 (1%)	20 (13%)
CNS has a good overview of the problems I experience in daily life	133 (84%)	2 (1%)	23 (15%)
There was sufficient opportunity to ask questions	159 (99%)	1 (1%)	0 (0%)
Visit to the CNS satisfied fully to my expectations	137 (87%)	6 (4%)	15 (10%)
Visit to the CNS was very useful to me	140 (88%)	3 (2%)	17 (11%)

*Persons who answered 'fully satisfied' and 'satisfied' were categorized into one group;
**Persons who answered 'fully not satisfied' and 'not satisfied' were categorized into one group.

Table 4: Satisfaction measured in 195 hand osteoarthritis patients who received a clinical nurse specialist consultation at baseline and follow-up.

Domain (subscore range)	Items	Summated items (mean, SD, range)
Knowledge (0-8)	2	6.3 (1.26, 3-8)
Quality of information (0-20)	5	16.0 (2.63, 10-20)
Empathy (0-8)	2	6.2 (1.24, 2-8)
Usefulness (0-16)	4	12.7 (2.47, 3-16)
Total (0-65)	13	41.4 (6.46, 26-52)
Overall satisfaction report mark (0-10)		8.0 (1.0, 5-10)

SD, standard deviation.

DISCUSSION

The results from this proof-of-concept study showed that a single short consultation and one telephone contact by the clinical nurse specialist in hand OA patients as part of standard usual care, appear to improve the physical dimension of health-related quality of life (HRQoL). The improvement of the physical component was mainly determined by improvements on the subscales 'role limitations due to physical health problems' and 'bodily pain'. Self-reported hand pain and disability as measured with a specific hand function measure did not change after consultation. The use of helping aids/devices and acetaminophen was increased after intervention, whereas the usage of NSAIDs showed a trend towards a decrease. Most patients were satisfied with the education.

The strength of this study was that it was possible and feasible to offer a short standardized consultation by a clinical nurse specialist to a large number of patients with hand OA in rheumatology practice (over 400 patients in 3.5 years) and collect data from these patients, which reflects the daily clinical practice of hand OA management. In this study, the Short Form-36 was used to measure HRQoL and a small increase was shown, after a relatively small amount of effort. A recent reandomized controlled Norwegian trial showed that assistive technology (defined as assistive devices and splints) improved activity and satisfaction performance in patients with hand OA compared with provision of information only[7]. Although HRQoL was not investigated in this randomized controlled trial, the positive effect of assistive technology could possibly lead to a better HRQoL. Surprisingly, in the present study no change was seen between baseline and follow-up with regard to self-reported function, measured by AUSCAN. The same randomized controlled Norwegian trial showed persons treated with an assistive device report less functional limitation[7], whereas other systematic reviews showed positive effects of joint protection education on function[27,28]. It could be that the consultation of the clinical nurse specialist does not directly improve the disease-specific complaints of hand OA, but improves the health status in general after attention and information from the clinical nurse specialist.

After the visit to our clinical nurse specialist, more assistive devices and acetaminophen were used. These changes in health care use are in accordance with the advices given by the rheumatologist and clinical nurse specialist. This finding suggests that patients with hand OA do follow the advices given by the clinical nurse specialist and/or that the clinical nurse specialist is fulfilling her role in an adequate way by helping patients actively to get access to assistive devices or advising acetaminophen use instead of NSAIDs. A trend in lower use of NSAIDs was observed. In an earlier study a nurse-directed education program was more effective to reduce the use of NSAIDs than received routine OA care only[29]. However, that 18-week study comprised of four telephone calls and one follow-up visit, while patients in the present study were educated once and received one telephone call.

The present study shows that most patients were satisfied with the information and education from the clinical nurse specialist in a short consultation. Hill *et al.* showed already that patient satisfaction was good in OA patients who received care from the clinical nurse specialist, compared with a hospital doctor[15]. The high internal consistency of this patient satisfaction questionnaire was shown by the high scores of

the Cronbach's alpha. It is possible that non-responders were less satisfied with the consultation and could explain that questionnaires were not returned as requested, but unfortunately no information of the non-responders is available.

This study is a description what follows after a clinical nurse specialist consultation with regard to HRQoL and use of assistive devices/analgesics in hand OA patients, in order to get insight whether improvements in hand OA management could be achieved with a relatively small amount of effort and time. That no control group was included in this study is a limitation, as is the lack of information of the non-responders. It is conceivable that patients who were reassured that they did not have an inflammatory rheumatic disease did not find it necessary to return the questionnaires to the clinical nurse specialist. Also, the clinical nurse specialist did not record systematically which additional health professionals were consulted after the baseline visit and whether concomitant diseases were present that might have influence the positive or negative effects in this study.

Furthermore, the multiple comparisons in this study should be addressed. In Table 2, 14 comparisons have been performed, which could have led to one false-positive finding by chance only. However, we observed five statistically significant findings and these findings supported each other (more acetaminophen use, more assistive devices use, less NSAID use (although not significant)), which makes it more likely that the findings are true and not only found by chance.

The effect sizes found in this study were relatively small, as is not unexpected in the field of OA management[6,19,30,31]. However, it should be kept in mind that this study was not designed as an effectiveness study, but rather as a proof-of-concept study. Any positive findings following this relatively simple and cheap intervention would justify further research into its cost-effectiveness as compared to complex, multidisciplinary interventions that are nowadays offered for this condition.

However, our findings reflect the daily clinical reality in secondary care, which we can explore to see if there is an easy and comprehensive way of providing care is sufficient to manage hand OA, instead of extensive rehabilitation programs. The findings indicate that there is room for improvement in integrated care for hand OA and can be used to design future randomized controlled trials of the role of clinical nurse specialist in hand OA care, including a control group. Furthermore, there is a possibility that the positive significant results are biased by the eagerness of patients to please the clinical nurse specialist. Patients could feel some social pressure to answer positively on the satisfaction questionnaire or may have not returned the postal questionnaires if they were not satisfied with the provided care. However, one patient who was not fully satisfied provided constructive feedback to the clinical nurse specialist for improvement.

In conclusion, a single 1-hour consultation and telephone follow-up by a clinical nurse specialist appears to be feasible and potentially effective contribution to the management of hand OA in secondary care, which is relatively cheap in comparison with multidisciplinary treatment programs. The majority of patients were satisfied with the consultation. Further controlled trials are needed to determine the added value of the clinical nurse specialist in the care for hand OA patients. Also cost-effectiveness should be investigated.

Acknowledgements

The authors are grateful to the clinical nurse specialists (mrs. L. Kolman, A. Jongma, E. Schoonenberg, J. Bouts) who treated the patients, performed all clinical assessments and made this work possible.

REFERENCE LIST

1. Altman R, Alarcon G, Appelrouth D, Bloch D, Borenstein D, Brandt K et al. The American College of Rheumatology criteria for the classification and reporting of osteoarthritis of the hand. Arthritis Rheum 1990; 33:1601-10.
2. Kwok WY, Vliet Vlieland TP, Rosendaal FR, Huizinga TW, Kloppenburg M. Limitations in daily activities are the major determinant of reduced health-related quality of life in patients with hand osteoarthritis. Ann Rheum Dis 2011; 70:334-6.
3. Slatkowsky-Christensen B, Mowinckel P, Loge JH, Kvien TK. Health-related quality of life in women with symptomatic hand osteoarthritis: a comparison with rheumatoid arthritis patients, healthy controls, and normative data. Arthritis Rheum 2007; 57:1404-9.
4. Dahaghin S, Bierma-Zeinstra SM, Ginai AZ, Pols HA, Hazes JM, Koes BW. Prevalence and pattern of radiographic hand osteoarthritis and association with pain and disability (the Rotterdam study). Ann Rheum Dis 2005; 64:682-7.
5. Hill S, Dziedzic KS, Ong BN. The functional and psychological impact of hand osteoarthritis. Chronic Illn 2010; 6:101-10.
6. Chodosh J, Morton SC, Mojica W, Maglione M, Suttorp MJ, Hilton L et al. Meta-analysis: chronic disease self-management programs for older adults. Ann Intern Med 2005; 143:427-38.
7. Kjeken I, Darre S, Smedslund G, Hagen KB, Nossum R. Effect of assistive technology in hand osteoarthritis: a randomised controlled trial. Ann Rheum Dis 2011; 70:1447-52.
8. Rannou F, Dimet J, Boutron I, Baron G, Fayad F, Mace Y et al. Splint for base-of-thumb osteoarthritis: a randomized trial. Ann Intern Med 2009; 150:661-9.
9. Stamm TA, Machold KP, Smolen JS, Fischer S, Redlich K, Graninger W et al. Joint protection and home hand exercises improve hand function in patients with hand osteoarthritis: a randomized controlled trial. Arthritis Rheum 2002; 47:44-9.
10. Li LC, Sayre EC, Kopec JA, Esdaile JM, Bar S, Cibere J. Quality of Nonpharmacological Care in the Community for People with Knee and Hip Osteoarthritis. J Rheumatol 2011; 38:2230-2237.
11. Rosemann T, Wensing M, Joest K, Backenstrass M, Mahler C, Szecsenyi J. Problems and needs for improving primary care of osteoarthritis patients: the views of patients, general practitioners and practice nurses. BMC Musculoskelet Disord 2006; 7:48.
12. Dutch Association of Orthopaedic Surgeons. Diagnosis and management of hip and knee osteoarthritis (in Dutch). 1-11-2007. Available from: www.cbo.nl/Downloads/363/rl_heup_knie_07.pdf. Accessed October 10, 2011. pp. 37-74.
13. Zhang W, Doherty M, Arden N, Bannwarth B, Bijlsma J, Gunther KP et al. EULAR evidence based recommendations for the management of hip osteoarthritis: report of a task force of the EULAR Standing Committee for International Clinical Studies Including Therapeutics (ESCISIT). Ann Rheum Dis 2005; 64:669-81.
14. Boustedt C, Nordenskiold U, Lundgren NA. Effects of a hand-joint protection programme with an addition of splinting and exercise: one year follow-up. Clin Rheumatol 2009; 28:793-9.
15. Hill J, Lewis M, Bird H. Do OA patients gain additional benefit from care from a clinical nurse specialist?--a randomized clinical trial. Rheumatology (Oxford) 2009; 48:658-64.
16. Tijhuis GJ, Zwinderman AH, Hazes JM, van den Hout WB, Breedveld FC, Vliet Vlieland TP. A randomized comparison of care provided by a clinical nurse specialist, an inpatient team, and a day patient team in rheumatoid arthritis. Arthritis Rheum 2002; 47:525-31.
17. Tijhuis GJ, Zwinderman AH, Hazes JM, Breedveld FC, Vlieland PM. Two-year follow-up of a randomized controlled trial of a clinical nurse specialist intervention, inpatient, and day patient team care in rheumatoid arthritis. J Adv Nurs 2003; 41:34-43.
18. Verhoef J, Toussaint PJ, Zwetsloot-Schonk JH, Breedveld FC, Putter H, Vliet Vlieland TP. Effectiveness of the introduction of an International Classification of Functioning, Disability and Health-based rehabilitation tool in multidisciplinary team care in patients with rheumatoid arthritis. Arthritis Rheum 2007; 57:240-8.
19. Zhang W, Moskowitz RW, Nuki G, Abramson S, Altman RD, Arden N et al. OARSI recommendations for the management of hip and knee osteoarthritis, part I: critical appraisal of existing treatment guidelines and systematic review of current research evidence. Osteoarthritis Cartilage 2007; 15:981-1000.
20. Coene E.H, Kollaard S, Vinke H. Zorgboek Artrose. Fourth Edition ed. Amsterdam: De Vrije Uitgevers, 2009.

21. Dreinhofer K, Stucki G, Ewert T, Huber E, Ebenbichler G, Gutenbrunner C et al. ICF Core Sets for osteoarthritis. J Rehabil Med 2004; (44 Suppl), 75-80.
22. Aaronson NK, Muller M, Cohen PD, Essink-Bot ML, Fekkes M, Sanderman R et al. Translation, validation, and norming of the Dutch language version of the SF-36 Health Survey in community and chronic disease populations. J Clin Epidemiol 1998; 51:1055-68.
23. Ware JE. User's Manual for the SF-36v2 Health Survey, Second Edition. Chapter 7 ed. 2009; pp. 81-84.
24. Bellamy N, Campbell J, Haraoui B, Gerecz-Simon E, Buchbinder R, Hobby K et al. Clinimetric properties of the AUSCAN Osteoarthritis Hand Index: an evaluation of reliability, validity and responsiveness. Osteoarthritis Cartilage 2002; 10:863-9.
25. Tijhuis GJ, Kooiman KG, Zwinderman AH, Hazes JM, Breedveld FC, Vliet Vlieland TP. Validation of a novel satisfaction questionnaire for patients with rheumatoid arthritis receiving outpatient clinical nurse specialist care, inpatient care, or day patient team care. Arthritis Rheum 2003; 49:193-9.
26. Bellamy N, Wilson C. International estimation of Minimally Clinically Important Improvement (MCII75) The Reflect Study. Int Med Journal 37 (Suppl 2), A36. 2007.
27. Valdes K, Marik T. A systematic review of conservative interventions for osteoarthritis of the hand. J Hand Ther 2010; 23:334-50.
28. Ye L, Kalichman L, Spittle A, Dobson F, Bennell K. Effects of rehabilitative interventions on pain, function and physical impairments in people with hand osteoarthritis: a systematic review. Arthritis Res Ther 2011; 13:R28.
29. Mazzuca SA, Brandt KD, Katz BP, Ragozzino LR, G'sell PM. Can a Nurse-Directed Intervention Reduce the Exposure of Patients With Knee Osteoarthritis to Nonsteroidal Antiinflammatory Drugs? J Clin Rheumatol 2004; 10:315-22.
30. Mahendira D, Towheed TE. Systematic review of non-surgical therapies for osteoarthritis of the hand: an update. Osteoarthritis Cartilage 2009; 17:1263-8.
31. Zhang W, Doherty M, Leeb BF, Alekseeva L, Arden NK, Bijlsma JW et al. EULAR evidence based recommendations for the management of hand osteoarthritis: report of a Task Force of the EULAR Standing Committee for International Clinical Studies Including Therapeutics (ESCISIT). Ann Rheum Dis 2007; 66:377-88.