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The obstacles of evidence-based practice in the treatment of knee osteoarthritis: An in-depth interview study regarding orthopedic surgeons

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Abstract

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Achtergrond: Ondanks de beschikbaarheid van talrijke richtlijnen betreffende de diagnose en behandeling van knieartrose is de implementatie van deze richtlijnen in de praktijk slechts beperkt. Het doel van deze studie is de identificatie van alle barrières die momenteel aanwezig zijn voor de implementatie van evidence-based richtlijnen betreffende knieartrose bij de orthopedische chirurg. Deze studie kadert in een grotere doctoraatsstudie met als doel het in kaart brengen van alle huidige barrières voor de implementatie van deze richtlijnen bij alle hulpverleners die betrokken zijn in de zorg voor patiënten met artrose van de knie, alsook de identificatie van deze barrières bij de patiënten zelf.

Methodes: Er werd een kwalitatief onderzoek verricht aan de hand van diepte-interviews bij orthopedisch chirurgen en assistenten in de orthopedische chirurgie tot er saturatie van de data werd bereikt. Alle diepte-interviews werden neergeschreven en geanalyseerd voor identificatie van aanwezige barrières. Alle barrières werden gecategoriseerd in vier domeinen op basis van het theoretisch kader neergezet door Grol en Fleuren: De richtlijn, de professional, de patiënt en de organisatie en context.

Resultaten: Er werden achtenzestig verschillende barrières geïdentificeerd betreffende richtlijn implementatie bij artrose van de knie na het uitvoeren van tien diepte-interviews bij orthopedisch chirurgen en assistenten in de orthopedische chirurgie. Deze barrières waren aanwezig in alle vier eerder gedefinieerde domeinen. Het meest voorkomende domein was deze van de professional zelf met vijfentwintig geïdentificeerde barrières. De twee meest voorkomende individuele barrières waren het gebrek aan kennis van de orthopedisch chirurgen betreffende de beschikbare richtlijnen en de patiënten die een specifiek onderzoek of een specifieke behandeling eisten, met de orthopeden die het moeilijk vonden om niet op deze eis in te gaan.

Conclusie: Er werden duidelijke barrières geïdentificeerd betreffende de implementatie van knieartrose richtlijnen bij onze studiepopulatie van orthopedisch chirurgen en assistenten in de orthopedische chirurgie. Verder onderzoek is nog nodig betreffende de barrières aanwezig bij de patiënten zelf, alsook bij alle andere hulpverleners betrokken in de zorg voor patiënten met knieartrose. De huidige studiedata, aangevuld met data uit verder onderzoek, dient gebruikt te worden in verder te ontwikkelen richtlijn implementatiestrategieën, om zo een betere toepassing van evidence-based geneeskunde te verkrijgen op alle niveaus van de gezondheidszorg.

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The obstacles of evidence-based practice in the treatment of knee osteoarthritis: An in-depth interview study regarding orthopedic surgeons

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Abstract

Background: Despite the availability of guidelines regarding the management of knee osteoarthritis, poor implementation has raised concern regarding the use of Evidence-Based Practice. The objective of this study was to identify barriers for guideline adherence in orthopedic surgeons regarding the management of knee osteoarthritis. This study is part of a bigger research project identifying all barriers for guideline adherence among patients and other healthcare providers involved in the treatment of knee osteoarthritis.

Methods: A qualitative study was performed using individual in-depth interviews with orthopedic surgeons and residents in orthopedic surgery until data saturation was reached. Interview reports were transcribed and analyzed for identification of barriers. Barriers were categorized in four domains according to the framework of Grol and Fleuren: The guideline, the professional, the patient and the organization and setting.

Results: A total of sixty-eight barriers regarding guideline adherence in osteoarthritis of the knee were identified among ten professionals. Barriers were present in all four domains. The most prevalent domain was the domain of the professional with twenty-five identified barriers. Most frequently mentioned barriers were the lack of knowledge regarding available guidelines and the patients asking a specific diagnostic test or therapy with professionals finding it difficult to resist insisting patients.

Conclusion: Clear barriers leading to poor guideline adherence among orthopedic surgeons and residents in orthopedic surgery were identified. Further research is needed regarding barriers to guideline adherence among patients and other healthcare providers involved in knee osteoarthritis. Current study data should be taken into account in guideline implementation strategies.

Key Words: Osteoarthritis, knee, guideline adherence, barriers, facilitators.

Introduction

Osteoarthritis (OA) is the most common joint related disease in the world and a leading cause of disability in adults.[1,2] As a disease of the whole joint, OA is characterized by pathological changes and progressive destruction of the articular cartilage, as well as remodulation of subchondral bone, osteophyte formation and synovitis.[3,4] With OA being so prevalent, numerous national and international guidelines for knee osteoarthritis (KOA) have been published describing the evidence-based management of the disease ranging from conservative treatment to surgical intervention.[5-9] Despite the availability of these guidelines, there is a rising concern regarding the use of evidence-based medicine due to the failure to implement these guidelines in daily practice.[10,11]

Previous studies have shown poor guideline adherence in multiple first world countries, resulting in suboptimal patient care.[10-13] The lack of implementation is present on all levels of KOA management. Current available guidelines on KOA advise starting with a conservative treatment to limit disease progression and reduce symptoms.[7,8] A surgical intervention is only advised when conservative therapy is optimized and not sufficient in controlling disease symptoms.[5-9] However, several studies have shown conservative treatments to be suboptimal at time of surgical intervention. This included not only the suboptimal usage of medication, but most importantly the lack of use of non-pharmacological treatments in the management of KOA.[14-16] A full use of conservative treatments can delay the need for surgical intervention and can be very important taking into consideration the limited lifespan of current prostheses.[17] When surgical intervention is needed arthroscopic interventions are frequently used before resorting to joint replacement surgery, this despite rarely being indicated and having very limited success in the general management of KOA.[18,19] It has been shown that an increase in guideline adherence and evidence-based practice can result in a significant improvement in clinical scores regarding pain and function in patients with KOA, in addition to a reduction in overall costs regarding KOA care.[13] Multiple healthcare providers are involved in the care for patients with KOA. The general practitioner, having the most overall patient information and being the healthcare provider closest to the patient, is tasked in the daily guidance of patients with OA of the knee. Guidelines and guideline adherence by the general practitioner is therefore very important regarding the conservative treatment of the patient and determining the correct moment for referral. The most important healthcare provider in the invasive management of KOA remains the orthopedic surgeon. When conservative treatment fails it is the job of the orthopedic surgeon to reevaluate the current treatment and suggest an alternative with the possibility of invasive procedures.

Equally as important as the availability of guidelines is the development of a guideline implementation strategy to boost adherence and therefore contribute to evidence-based practice.[20-22] Essential in the creation of a guideline implementation strategy is the identification of possible barriers regarding guideline adherence. Barriers can be present on different levels according to the framework of Grol and Fleuren, such as the guideline itself, the professional, the patient or even the organization and setting and can be identified by patients as well as by all healthcare providers involved in KOA care.[23-27] Using a qualitative study protocol and performing semi-structured interviews, our aim was to identify current barriers for guideline adherence in the management of KOA according to orthopedic surgeons. This study is part of a bigger research project identifying all barriers for guideline adherence among patients and all healthcare providers involved in the treatment of KOA.

Methods

Study methods used are in accordance with the Consolidated criteria for Reporting Qualitative research (COREQ) and are presented as such.[28]

Research team and reflexitivity

All semi-structured interviews were conducted by a single male researcher (P.T.). Current credentials consists of graduating as master of medicine in 2013, sport medicine in 2014 and currently employed as a resident general practitioner. Previous experience in qualitative research was very limited. No additional training regarding qualitative research was followed. However, R.H. is very experienced in the field of qualitative research and has had additional training prior to the study. There was no prior relationship between the interviewer and the study participants, participant knowledge of the interviewer was kept very limited to avoid bias. There is no bias present regarding the interviewer, P.T., and the research topic.

Study design

Regarding the multidimensional and complex nature of barriers and facilitators in guideline adherence, we conducted a study using qualitative methods by performing semi-structured interviews until data saturation was reached. We based the structuration of the interviews, as well as the analysis of the transcriptions using content analysis, on the theoretical framework by Grol and Fleuren.[24-26] Both theoretical frameworks use four different categories for the categorization of possible barriers. The four categories described by the theoretical models by which barriers are divided consist of the characteristics of the guideline itself (1); characteristics of the professional (2),

characteristics of the patient (3) and the organization and setting in which the guideline is applied (4).

Participants

The participants consisted of 7 orthopedic surgeons and 3 residents in orthopedic surgery, all involved in the care of patients with OA of the knee and currently working in four different hospitals. No participants were dropped from the study. Contacting the participants and conducting the interviews was done between October 2014 and March 2015. All interviews were held in the hospital of the participant and took place in the eastern part of Flanders, Belgium. Ten individuals agreed to participate in the study out of the sixteen contacted individuals. Each interview consisted of only the interviewer and the participant, no other people were present at the time of the interview. The main and only language spoken in the interviews was Dutch, there was no language barrier present. Maximum variation sampling, a purposive sampling technique, was used to recruit all participants. Each participant was contacted by phone or email and given information regarding the subject, the length of the interview and guaranteed anonymity.

Data collection

A semi-structured interview script was developed to be used as a guide during the interview. The structure of the interview was based on the theoretical framework by Grol and Fleuren and the quality indicators developed by Grypdonck et al.(2014).[19,24-26] These indicators for quality KOA care are divided into four different categories: diagnosis (1), lifestyle/education/devices (2), therapy (3) and follow-up (4) of patients with OA of the knee. Each category is subdivided in evidence-based recommendations regarding high quality care in KOA. Professionals were interviewed for barriers regarding the adherence to KOA guidelines in general and in specific for each evidence-based recommendation. We provided information to the participants regarding the four domains of barriers so they were aware of the concept. An evaluation of the interview technique and the acquired data was performed after the second interview, no problems were noted and no changes were made. No repeat interviews were carried out. All interviews were audio recorded and key notes were taken during the interview. The average duration of an interview was 32min. We concluded that data saturation was reached after ten interviews. No transcript of the interview was returned to the participants.

Analysis and findings

Conventional content analysis based on the interview transcript was performed using NVivo 10 (QSRinternational, Australia), a qualitative data analysis software package. All interview transcripts

were coded by one researcher, P.T., using a method of open coding. Open coding does not utilize predetermined codes, but rather bases the codes on the data at hand. No participant feedback regarding study findings was provided at the time of writing. Participant quotations were used to illustrate the themes and each quotation was identified by participant number. All major and minor themes were identified within the barriers to guideline adherence through the process of open coding and categorized in one of the four domains of the framework of Grol and Fleuren.[24-26] All findings and data appeared to be consistent.

Results

Study population

A total of ten in-depth interviews were conducted among orthopedic surgeons in the eastern-part of Flanders, Belgium. The ten orthopedic surgeons consisted of nine men and one woman. All ten professionals are currently employed in four different hospitals. Three orthopedic surgeons were still in training and are considered residents. Four of the participating professionals are from university hospitals, the six remaining professionals are all employed in a non-university hospital. The average age was 43.1 years, ranging from 27 to 62 years old. The total years of experience in orthopedic surgery including residency ranged from 3 to 37 years, with an average of 18.3 years of experience amongst the ten professionals. Out of the ten participants, six were currently working as an orthopedic surgeon specialized in knee surgery, three are still considered residents and have no specific specialization and one orthopedic surgeon has a history of specialization in knee surgery, but recently changed his field of interest to feet and hands. Participant demographics are summarized in table1.

Study population demographics	
Total number of participants	10 (100%)
Gender	
Men	9 (90%)
Women	1 (10%)
Age	
Average	43.1 years
Range	27-62 years
Current status	
Orthopedic surgeon	7 (70%)
Resident	3 (30%)
Employement	
University hospital	4 (40%)
Non-university hospital	6 (60%)
Years of experience	
Total average	18.3 years
Range	3-37 years

Table 1. Study population demographics

Barriers for guideline adherence

A total of 68 barriers influencing guideline adherence were mentioned by participating professionals. Barriers were related to the adherence of guidelines in general, as well as specific aspects of the guidelines regarding KOA and were identified in all four domains: The guideline (1), the professional (2), the patient (3) and the organization and setting (4). The total number of individual barriers identified for each domain were 9 barriers regarding the guideline, 25 in the domain of the professional, 16 barriers were attributed to the patient and 18 barriers were identified in the domain of the organization and setting. Most important barriers per domain are summarized in table2.

Guideline adherence in general

Barriers regarding guideline adherence in general were most prominent in the domains of the professional himself and the guideline. Most professionals declared a lack of knowledge regarding current guidelines. No active effort was made in researching guidelines by the professionals and most didn't know where to locate them. A recurring barrier in guideline adherence was seen in the difficulty in changing their behavior due to fixed habits and the belief that their own judgement, based on years of experience and their orthopedic training, is still better then rigid guidelines.

"No, I have to be honest, I don't know and don't use any guidelines. My day to day practice is based on my years of experience and what I learned in orthopedic training." Participant 5

A combined barrier in the professional and patient domains is the difficulty for professionals to resist insistent patients, with a consensus that patients are becoming more demanding. More often are patients demanding specific diagnostic tests or a specific therapy. The guidelines itself were perceived as to be too limiting in regards to flexibility and adapting care to the individual patient. Most professionals were skeptical regarding the evidence used in the creation of guidelines and the expert opinions used when there is a lack of statistically significant evidence. Barriers regarding organization and setting were mostly due to the lack of incentive for the use of evidence-based guidelines from the Belgian Knee Society (BKS) or the 'Belgische Vereniging voor Orthopedie en Traumatologie' (BVOT, the Belgian orthopedic surgery and trauma association).

"I have no knowledge of any seminar or meeting organized by the BKS or the BVOT in which evidence-based guidelines were mentioned or were a point of discussion" Participant 9

"In The Netherlands, evidence-based guidelines are distributed by the national orthopedic association resulting in better guideline adherence" Participant 5

Residents, as well as orthopedic surgeons, mentioned no attention for the use of evidence-based guidelines during their training in orthopedic surgery. An added barrier in guideline adherence specific to residents was the overruling by their supervisors during decision making.

Adherence to diagnostic recommendations

With medical imaging not necessary in KOA diagnosis, radiographs were only indicated in KOA in case of pain resistant to conservative therapy. Numerous barriers were mentioned regarding this delay in medical imaging after clinical diagnosis of OA of the knee. There are the patients themselves who expect and demand imaging for further investigation of the knee pain they are experiencing, especially when consulting an orthopedic surgeon, with the professionals feeling it difficult to resist the patient's wishes. The participants declared most patients don't feel taken seriously when no medical imaging is performed, some patients go as far as declaring they'll change professional if no further steps are taken.

"Even if you argue that imaging won't be helpful, most patients still want imaging to take place. Sometimes you have to give in and respect their wishes. As long as we're not practicing state medicine we have to try to educate our patients, but maintain their trust. Otherwise they will find someone else." Participant 5

The fear of missing an important diagnosis due to the lack of imaging, and the legal consequences this could have, is an important barrier for the professional. A recurrent barrier in delaying the imaging was the fact it would cost more time and effort to explain to the patient why no imaging was needed then to do the actual imaging. Also the fact that plain radiography of the symptomatic knee is inexpensive and low in risk played a key role. Residents argued additional imaging to be key in their education, radiological confirmation of a clinical diagnosis of OA of the knee boosted their confidence and aided them in relying on their clinical examination to make a diagnosis.

The aspiration and analysis of synovial fluid in recurrent clinically evident effusions in patients with OA of the knee was very controversial. All but one of the participants were not in favor of this recommendation and argued that recurrent effusions should only be aspirated and analyzed if there were more factors suggesting an alternative cause of inflammation. The most important barrier was the lowering of the reward to risk ratio. Standard aspiration and analysis would come at a high financial cost and with an increased risk for septic arthritis, refraining the professionals from performing these diagnostic tests in each patient with recurrent effusions of the knee.

table2. Most important barriers per domain, related to poor guideline adherence according to professionals

The guideline	The professional	The patient	Organization and Setting
•Too hard to find	**Knowledge (3):** •Lack of knowledge about the content of the guideline •No active research regarding current guidelines •Does not know where to find current guidelines •Limited knowledge regarding patient history and comorbidities	•Insists on performing specific diagnostic tests	•No incentive for guideline adherence from professional associations
•No specific guidelines for General Practitioner and orthopedic surgeon		•Insists on performing a specific therapy	•No incentive for guideline adherence from orthopedic training
•Too limiting in regards to individually adapted care		•Lack of knowledge regarding diagnostic tests and invasive therapy	•Secondary and tertiary healthcare setting resulting in changed patient expectations and guideline deviation for learning purposes
•Not all recommendations are evidence based	**Guideline opinion (6):** •Belief that own judgement, based on training and experience, is better than guideline •Disagrees with certain recommendations •Questions about the legitimacy of the evidence used in the guidelines •Questions about the experts responsible for the guideline •Underestimation of the importance of a guideline •Believes the placebo effect is underrated •The guideli**ne is too time-consuming** •Increased risk for **the patient**	•Is often not in favor of the conservative approach	•Lack of communication between the orthopedic surgeon and other healthcare providers
		•Wants a fast solution for their problem	•Influence on patients through commercials
		•Doesn't want to put any effort into their own therapy	•Financial implications regarding the cost for the patient or society and possible earnings for the orthopedic surgeon alter guideline adherence
		•Does not adopt lifestyle advise	•Shortness of time in the outpatient clinic
		•Shows poor therapy adherence	•Supervisors overruling the resident
	Previous experiences: •Difficulties changing behavior because of fixed habits	•The presence of a mental barrier for joint replacement surgery	•The possibility of patients changing orthopedic surgeon
	Attitude to others (4): •Difficulty to resist insisting patients •Wants to meet patients and general practitioners expectations •Fear of legal consequences •Fear of losing patients	•Threaten to find another orthopedic surgeon if their demands are not met	•The lack of self-reliance of patients and their social setting can result in a different therapeutic strategy
	Own attitude (4): •Experiencing a feeling of time pressure •Is often tempted to take the fast and easy solution •Copies behavior of supervisors •Does extra diagnostic tests for personal learning		•Athletes or other individuals where OA can affect their career often receive a more direct treatment

"Strictly diagnostically speaking I do not see it having additional value. We try to avoid every puncture of a joint to reduce the risk for infection. I would only perform an aspiration if it could have additional value with factors indicating rheumatic diseases or gout, but not in a standard osteoarthritis of the knee. I don't think it would be interesting on an economical level seeing the added cost for society." Participant 1

Adherence to lifestyle/education/devices recommendations

An important part in the conservative treatment for OA of the knee is the education of patients regarding lifestyle, obesity and physical activity. With all professionals agreeing this as being very important if conservative therapy is to succeed, they all agreed this to be the most frustrating and difficult part of the treatment. Barriers withholding good patient education were present in all four domains. Professionals found patients to be unmotivated for conservative treatment and lifestyle changes. Patients were perceived to be unwilling to put effort into their own treatment and often demanded a more invasive or specific treatment, with the fear of losing patients if their demands were not met present among professionals. The participants mentioned the feeling of time pressure as being one of the biggest barriers in patient education and added that they felt it to be more the task of the general practitioner to educate the patients.

"Seeing as time per patient in the outpatient clinic is limited to ten minutes, it is very difficult to educate the patient. In my opinion education is better given at the general practitioner, with a referral to the orthopedic surgeon after these changes have been tested. I don't think it's the job of the orthopedic surgeon to tell patients how to lose weight or exercise when the general practitioner has a better understanding of the patient." Participant 4

When asked which barriers they thought played an important role in colleagues neglecting education, financial gain by immediately performing invasive therapy and underestimation of the importance of conservative therapy were often mentioned. In general all professionals agreed the recommendation to be good, but too time consuming for the outpatient clinic. Lack of communication between the orthopedic surgeon and other involved healthcare providers regarding previous education was perceived to be discouraging for the orthopedic surgeon. All professionals added that an increase in communication between the general practitioner and the orthopedic surgeon would be beneficial for guideline adherence and providing high quality care for patients with KOA.

The same set of barriers could be identified for the prescription and modulation of exercise therapy. The professionals added that patients who had already seen a physical therapist but were given inadequate exercises were less likely to be persuaded into retaking exercise therapy. They found lack of communication regarding what had already been done in therapy to be a barrier and were not inclined to prescribe exercise therapy again if the patient mentioned he had already seen a physical therapist. Transition into independent exercises was thought to be the task of the physical therapist and not for the orthopedic surgeon.

With bracing only recommended in unicompartmental KOA with axial deviation, a large percentage of professionals deviated from this guideline. Soft elastic braces in patients with tricompartmental KOA were often prescribed by the participants due to patients specifically asking for knee bracing and previous positive experiences with soft elastic braces lowering the threshold to prescribe them. They acknowledged the placebo effect to play a key role in these experiences, but they found this not to influence their decision making.

"Soft elastic bracing is more based on a placebo effect. But in my experience, patients with diffuse knee osteoarthritis get good results with these braces despite the lack of scientific evidence. If I want to buy some time and the patient is regressing and tells me they feel a lack of support, I will prescribe them the soft elastic brace." Participant 5

Adherence to therapy & follow-up recommendations

The next step in the conservative treatment of KOA is the use of medication. The prescription of acetaminophen as a first choice analgesic was accepted by all professionals except one. One barrier could be identified by one of the residents who mentioned prescribing non-steroidal anti-inflammatory drugs (NSAID) as first choice due to supervisors using this as the standard protocol for knee pain in OA of the knee. Intermittent usage of NSAID's was also widely accepted by all professionals, no barriers could be found regarding this recommendation. Continuous NSAID use in patients was not halted by the participants because of a lack of information regarding the patients' history and comorbidities. The use of COX2-selective agents in patients at risk was only preferred over non-specific NSAID's with a proton pump inhibitor (PPI) if there was a need for continuous use of NSAID's, this preference from the participants was purely based on the cost for the patient. All participants agreed COX2-selective agents or PPI's were needed in patients at risk for gastric ulcers.

"I would only prescribe arcoxia for patients of 65 years or older because of financial reasons. I will only prescribe for long periods of time and will never prescribe it for short intermittent periods of NSAID use." Participant 1

Strong opioid use in patients with KOA was still being prescribed by our study population. Most orthopedic surgeons argued that they disagree with the recommendation and see very good results with the use of these strong opioid as a rescue analgesic. It is the positive experiences in the past, coupled with the low cost for the patients, that persuades most of the participants in prescribing opioids for patients with KOA experiencing uncontrollable pain.

Chondroitin and glucosamine supplements are widely used in the setting of OA of the knee and we see this trend among our study population as well. Current recommendations advise against the use of these supplements in this setting. All participants supported this standpoint based on the fact that current evidence regarding their efficacy is lacking. The reasoning behind prescribing these supplements, knowing the lacking scientific evidence, is found in the domain of the patient, the professional and the organization and setting. Participants mentioned the supplements being heavily advertised by the pharmaceutical sector and therefore influencing patients in actively demanding a prescription. They felt no barriers in prescribing the supplement for insisting patients because of the low risk profile and the low cost for society. Most argued that given the positive results in prior patients it was worth for patients to try out.

"Every patient is started on chondroprotective medication. It can't hurt to try and has no additional cost to society. If it would have the least amount of side effects I would never prescribe it. But it is low in risk, it is cost free for society and I believe in its placebo effect in patients." Participant 6

If conservative therapy fails, arthroscopy is still considered to be the next step in the treatment of KOA by many. Current guidelines and recommendations show knee arthroscopy only to be indicated in very specific situations regarding locking of the knee due to a large meniscal fragment, a loose body or an extension deficit from an anterior anvil osteophyte. Our study population admitted performing knee arthroscopies in patients with KOA for other indications as well. The orthopedic surgeons declared patients and general practitioners still specifically asking for knee arthroscopy to be performed. Patients still perceive arthroscopy to be a good treatment for KOA and the fastest way to recovery. Our participants mentioned patients often not being mentally ready for joint arthroplasty and arthroscopy being the perfect stepping stone for them to come to terms with the need for arthroplasty. Most professionals admitted agreeing to knee arthroplasty from time to time seeing it as an easy solution which is financially appealing and which buys the patient some time.

When asked what motivates colleagues to perform arthroscopy in osteoarthritis of the knee: *"First of all, because the patient demands it and it is seen as not very invasive. Secondly, it is a financially appealing procedure to perform. It is easier explaining the patient that you're going to perform an arthroscopy than explaining why you are not going to do anything." Participant 7*

They argued experiencing a high patient satisfaction after arthroscopy, reasoning that for some people the limited time they gain by performing the arthroscopy is all they need to come to terms with the fact they will need joint arthroplasty. Most found the guideline to be correct, but too limiting in regards to adapting care to the individual patient. Especially in younger patients with OA, most professionals argued arthroscopy of the knee to be a viable therapeutic option in an attempt to prolong the time to knee arthroplasty. These principles seem to indoctrinate the residents, seeing as they all admitted KOA in general not to be a good indication for arthroscopy but would try it themselves in this setting as their supervisors do it as well.

The last stage of OA therapy is joint arthroplasty. High quality of care was defined as considering joint replacement in patients not obtaining adequate pain relief and functional improvement. All professionals agreed with the recommendation but mentioned joint arthroplasty often being performed too soon. They claimed patients to regularly demand joint arthroplasty without having tried all aspects of the conservative treatment and colleagues agreeing to prosthesis surgery for financial gain, patient satisfaction and the fear of losing the patient to someone who will.

"If you won't perform the surgery if the patient really wants it, someone else will. That's how it works in Belgium, the patient will go to different orthopedic surgeons until they find someone who will perform the surgery. I have noticed supervisors agreeing to joint replacement because the patient is adamant on getting the surgery done." Participant 4

While agreeing with the recommendation, they found it to be too strict for some cases and too limiting in providing individually tailored care. Based on experience and on the social surrounding of the patients they argued that joint arthroplasty could be performed without trying conservative treatment.

Discussion

In an effort to reduce suboptimal patient care and promote evidence-based medicine and guideline adherence in KOA care, we performed a qualitative study using semi-structured in-depth interviews with orthopedic surgeons and residents in orthopedic surgery. The goal of this study was to explore the barriers responsible for the current gap between the theoretical guidelines and guideline adherence in practice. Guideline implementation and thus guideline adherence can be optimized using a guideline implementation strategy. The development of such an implementation strategy is only possible after identification of all barriers to guideline adherence. In this study we identified sixty-eight barriers influencing KOA guideline adherence among orthopedic surgeons and residents in orthopedic surgery. Barriers were present in all four domains regarding the guideline, the professional, the patient and the organization and setting. The most prevalent domain was the

domain of the professional with twenty-five identified barriers. Most frequently mentioned barriers among professionals were the lack of knowledge regarding available guidelines and the patients asking a specific diagnostic test or therapy with professionals finding it difficult to resist insisting patients.

Our results, identifying the domain of the professional as the most prevalent domain for barriers in guideline adherence, are in accordance with earlier data by Fleuren et al.[26] Not all barriers identified in our study cohort are limited to orthopedic surgeons. When comparing our data with previous studies concerning barriers in KOA guideline adherence, we noticed a recurrence in specific barriers among other healthcare providers and patients.[29-32] General practitioners ranked OA as the fourth most demanding condition in terms of practice time and experienced lack of time as a significant barrier in quality care, similar to our study population.[29] Not limited to OA, previous studies have shown lack of time to be a significant barrier for evidence-based medicine in general among healthcare providers.[30] Poor communication was not only a barrier in guideline adherence and quality care among orthopedic surgeons, but general practitioners identified collaboration with specialist colleagues and improved communication tools as the most common needs to improve the management of OA.[29] With poor communication being an important barrier recurring in multiple healthcare providers, it could prove to be an interesting target for guideline implementation strategies to address.

The strength of this qualitative interview study is the focus on all recommendations mentioned in the guideline. All key recommendations were assessed in regards to barriers interfering with guideline adherence. It is important to note the variety in barriers when comparing different recommendations within the guideline, essential information in the development of an implementation strategy. The identification of different barriers for each individual recommendation allows the implementation strategy to focus its interventions on specific barriers for each recommendation. However, an implementation strategy will never be able to address all identified barriers for each recommendation, detailed analysis of the data allows the identification of overlapping and widely applicable barriers and is essential in knowing where to focus its efforts to maximize impact on guideline adherence.

This qualitative interview study is not without its limitations. While we acknowledge the regional setting of the study to be a limitation, we still consider the results to be potentially representative on an international setting. All key recommendations used in this study originate from a Belgian and Dutch initiative on quality indicators in KOA care, but are based on international guidelines. Key recommendations and most identified barriers are therefore not specifically related to the regional

setting and can be applicable in international use. While the study population was limited to ten participants in total, it was very diverse. Participating professionals originated from different hospitals with a different background in orthopedic surgery. University and non-university hospitals were represented as well as orthopedic surgeons and residents in orthopedic surgery. The interview participants were selected by one researcher, P.T., through the use of maximum variation sampling. It is a possibility that selection bias was present in this study through the way participants were approached and selected. The coding of all interview transcripts by one researcher using a method of open coding leaves the study open to researcher bias, in addition the study method of semi-structured interviews performed by the same researcher is an additional risk in adding bias to this study.

Through a qualitative study using semi-structured in-depth interviews among orthopedic surgeons and residents in orthopedic surgery we managed to identify the current barriers regarding guideline adherence in OA care of the knee. Our findings confirm the diversity and complexity of barriers for guideline adherence, as well as the difference in barriers between key recommendations in the same guideline. This study is part of a bigger research project where barriers regarding guideline adherence are identified in all healthcare providers involved in the care of patients with OA of the knee, as well as in the patients suffering from KOA. The next step is to combine the gathered data regarding all barriers in guideline adherence among all healthcare providers and patients and develop an implementation strategy. Based on the data the implementation strategy could target specific barriers for each recommendation or address widely applicable and recurring barriers in guideline adherence. Based on the identified barriers, interventions for better guideline adherence could consist of better patient education to lower the number of patients insisting specific diagnostic tests or a specific therapy, additionally better guideline availability and active promotion of the guidelines would be another possible intervention for guideline adherence. The need for better communication between healthcare providers is a recurring barrier in guideline adherence and is present among all healthcare providers. An improvement in communication and more collaboration between all healthcare providers involved in KOA care seems to be essential in improving guideline adherence and promoting evidence-based medicine. Further research will be needed to compare the effect of an implementation strategy on guideline adherence to guideline adherence without these additional measures.

In conclusion, this study identified clear barriers for guideline adherence in OA of the knee. Professionals should be made aware of the identified barriers so they can take these into account during daily practice, intervention strategies using specific interventions can be developed to boost guideline adherence.

Acknowledgements

All authors would like to thank all the participating professionals for their contribution to this study.

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8. GEEF EEN KORTE SAMENVATTING VAN HET PROTOCOL (MINIMUM 30 ZINNEN/ EEN HALVE PAGINA EN MAXIMUM ÉÉN PAGINA), VERSTAANBAAR VOOR MENSEN NIET GESPECIALISEERD IN DE MATERIE, VERWIJS NIET ALLEEN NAAR EEN BIJGEVOEGD PROTOCOL.

Eerder onderzoek heeft reeds uitgewezen dat de opgestelde richtlijnen betreffende de behandeling van knieartrose niet steeds gevolgd worden. Deze afwijking van de richtlijn zien we op alle niveaus, van afwijkend voorschrijfgedrag tot een verkeerde indicatiestelling voor operatief ingrijpen bij knieartrose.

Kwantitatieve gegevens waarop we kunnen verder bouwen komen uit een studie afgenomen bij patiënten die omwille van artrose van het kniegewricht bij de orthopedisch chirurg op consultatie kwamen. Aan de hand van dit onderzoek bij orthopedisch chirurgen, zouden we willen nagaan welke factoren de opvolging van de richtlijnen in de weg staan en of er elementen zijn die het opvolgen van richtlijnen gemakkelijker zouden kunnen maken.

Door het uitvoeren van diepte interviews hopen we een beter zicht te krijgen op de beweegredenen van de orthopedist en zo gerichte adviezen te kunnen geven naar zorgverbetering in de toekomst. De interviews worden opgenomen op audiotape. De analyse van de resultaten gebeurt volledig anoniem. Er wordt een minimum van 8 diepte interviews afgenomen, waarna er een evaluatie wordt gemaakt van de bekomen resultaten en hun variatie. Indien deze variatie in antwoorden te groot is zullen er nog additionele interviews worden afgenomen om een eenduidig beeld te krijgen van het huidige orthopedische landschap.

Elk diepte interview wordt voorafgegaan door het ondertekenen van een schriftelijke toestemming. Het diepte interview wordt afgenomen volgens een op voorhand opgesteld script en zal hetzelfde zijn voor alle interviews. Orthopedisch chirurgen worden eerst telefonisch gecontacteerd met de vraag of zij openstaan voor deelname aan deze studie. De gegevens worden anoniem verwerkt. In plaats van namen, wordt er gebruik gemaakt van codes, zodat in wetenschappelijke tijdschriften uw naam niet kenbaar gemaakt wordt.

Bijlage 2: Goedkeuring ethische commissie

COMMISSIE MEDISCHE ETHIEK VAN DE UNIVERSITAIRE ZIEKENHUIZEN KULEUVEN
U.Z. GASTHUISBERG E330
HERESTRAAT 49
B-3000 LEUVEN (BELGIUM)

KATHOLIEKE
UNIVERSITEIT
LEUVEN

Aan dr. P. Vankrunkelsven
Centrum Huisartsengeneeskunde

ONS KENMERK ML8455
LEUVEN, 17 juli 2012

A measurement of knee osteoarthritis usual care.

Belgisch Nummer: B322201214707

S54497

DEFINITIEF GUNSTIG ADVIES

Geachte Collega,

De Commissie Medische Ethiek van de Universitaire Ziekenhuizen K.U.Leuven heeft vermeld protocol onderzocht en besproken op haar vergadering van 13 juli 2012.

De Commissie is van oordeel dat de voorgestelde studie, zoals beschreven in het protocol, wetenschappelijk relevant en ethisch verantwoord is. Ze verleent dan ook een gunstig advies over deze studie.

Deze studie werd geregistreerd als monocentrisch.

Dit gunstig advies betreft:

- *Protocol versie ontvangen 29/06/2012*
- *protocol gerelateerde documenten: samenvatting versie ontvangen 29/06/2012*
- *Patiëntendocumenten: versie 1 dd 28/06/2012*

De Commissie bevestigt dat ze werkt in overeenstemming met de ICH-GCP principes (International Conference on Harmonization Guidelines on Good Clinical Practice) en met de van toepassing zijnde wetten en regelgeving.

De Commissie bevestigt dat in geval van belangenconflict, de betrokken leden niet deelnemen aan de besluitvorming omtrent de studie.

Een ledenlijst wordt bijgevoegd.

De opdrachtgever is verantwoordelijk voor de conformiteit van de anderstalige documenten met de Nederlandstalige documenten.

Aandachtspunten: (indien van toepassing)

Indien er een Clinical Trial Agreement is, kan de studie in ons centrum pas aangevat worden wanneer dit Clinical Trial Agreement goedgekeurd en ondertekend is door de gedelegeerd bestuurder van UZ Leuven.

SECRETARIAAT: M. LEYS N. OPDEKAMP D. VAN MOLL M. VERBEECK H. HUYGHE
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ONS KENMERK ML8455
UW KENMERK
LEUVEN , 17 juli 2012

Studies met geneesmiddelen en sommige studies met "medische hulpmiddelen" dienen door de opdrachtgever aangemeld te worden bij het FAGG.
Studies met geneesmiddelen mogen slechts aanvangen op voorwaarde dat de minister (FAGG) geen bezwaren heeft kenbaar gemaakt binnen de wettelijke termijnen zoals beschreven in art.13 van de Belgische wet van 7/5/2004 inzake experimenten op de menselijke persoon.
Voor bepaalde studies met medische hulpmiddelen gelden eveneens wettelijke termijnen (zie KB van 17/3/2009).
Voor meer informatie hieromtrent verwijzen we naar de website van het FAGG www.fagg-afmps.be

Gelieve ook rekening te houden met de regelgeving van het ziekenhuis betreffende weefselbeheer.

Dit gunstig advies van de Commissie houdt niet in dat zij de verantwoordelijkheid voor de geplande studie op zich neemt. U blijft hiervoor dus zelf verantwoordelijk. Bovendien dient U er over te waken dat uw mening als betrokken onderzoeker wordt weergegeven in publicaties, rapporten voor de overheid enz., die het resultaat zijn van dit onderzoek.

U wordt eraan herinnerd dat bij klinische studies iedere door U waargenomen ernstige verwikkeling onmiddellijk zowel aan de opdrachtgever (desgevallend de producent) als aan de commissie medische ethiek moet worden gemeld, ook al is het oorzakelijke verband met de studie onduidelijk.

Indien de studie niet binnen het jaar beëindigd is, vereist de ICH-GCP dat een jaarlijks vorderingsrapport aan de commissie wordt bezorgd.

Tenslotte verzoeken wij U ons mee te delen indien een studie niet wordt aangevat, of wanneer ze wordt afgesloten of vroegtijdig onderbroken (met opgave van eventuele reden). Gelieve het (al dan niet vroegtijdig) stopzetten van een studie binnen de door de wet vastgelegde termijnen mee te delen en een Clinical Study Report aan de Commissie te bezorgen.

Met de meeste hoogachting,

Prof. Dr. Walter VAN DEN BOGAERT
Voorzitter Commissie Medische Ethiek
UZ K.U.LEUVEN

Prof. Dr. W. Van den Bogaert
Voorzitter
Commissie Medische Ethiek van de UZ K.U.Leuven

Cc : **FAGG** (Federaal Agentschap voor Geneesmiddelen en Gezondheidsproducten)
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COMMISSIE MEDISCHE ETHIEK VAN DE UNIVERSITAIRE ZIEKENHUIZEN K.U.LEUVEN
TOETSINGSCOMMISSIE
UZ GASTHUISBERG E330
HERESTRAAT 49
3000 LEUVEN BELGIUM

KATHOLIEKE
UNIVERSITEIT
LEUVEN

Ledenlijst Commissie Medische Ethiek/Toetsingscommissie (OG032)
vanaf 21 juni 2012 tot op heden
List of Members Ethics Committee/IRB (OG032)
from June 21st, 2011 until present

Prof. Walter Van den Bogaert, M.D.	Chairman (M)	Radiotherapy-Oncology
Dr. Johan Wildiers, M.D.	Vice-Chairman (M)	Medical Oncology
Dr. Sabine Graux, M.D.	Secretary (F)	Physician
Dr. Sonja Haesendonck, M.D.	Secretary (F)	Physician
Prof. Xavier Bossuyt, M.D.	Member (M)	Immunology
Prof. D. Bullens, M.D.	Member (F)	Paediatrics
Prof. Willem Daenen, M.D.	Member (M)	Cardiac Surgery
Dr. Lut De Groote, M.D.	External Member (F)	General Practitioner
Prof. Jan de Hoon, M.D.	Member (M)	Clinical Pharmacology
Prof. Ivo De Wever, M.D.	Member (M)	Surgical Oncology
De heer Filip Gybels	Member (M)	Head Nurse
Dr. José Thomas, M.D.	Member (M)	Medical Oncology
Dr. Ben Van Calster	Member (M)	Statistics
Prof. Jan Van Hemelrijck, M.D.	Member (M)	Anesthesiology
Prof. Raymond Verhaeghe, M.D.	Member (M)	Cardiology
Prof. Guido Verhoeven, M.D.	Member (M)	Experimental Medicine
Mrs. Christine Mathieu, Law	Member (F)	Medical Legislation

(M) = Male (F) = Female

De Commissie voor Medische Ethiek volgt de voorschriften van ICH Good Clinical Practice en de lokale wettelijke bepalingen terzake (wet van 7 mei 2004 inzake experimenten op de menselijke persoon en bijbehorende KB's en programmawet)

The Ethics Committee operates according to ICH Good Clinical Practice and local applicable regulations.

Informed consent

Naam + voornaam:

Geboortedatum:

Dit document heeft betrekking op de deelname aan wetenschappelijk onderzoek aan het Academisch Centrum voor Huisartsgeneeskunde van de KU Leuven met als titel: 'The obstacles of evidence-based practice in the treatment of knee osteoarthritis: An in-depth interview study regarding orthopedic surgeons.'.

Achtergrondinformatie: (Internationale) richtlijnen over de zorg voor patiënten met knierartrose, worden niet op alle vlakken goed opgevolgd. Aan de hand van dit onderzoek, zouden we willen nagaan welke factoren de opvolging van de richtlijnen in de weg staan en of er elementen zijn die het opvolgen van richtlijnen gemakkelijker zouden kunnen maken.

Procedure: De studie wordt uitgevoerd aan de hand van diepte-interviews. De interviews worden opgenomen op audiotape. De analyse van de resultaten gebeurt volledig anoniem.

Vertrouwelijkheid: De gegevens worden anoniem verwerkt. In plaats van namen, wordt er gebruik gemaakt van codes, zodat in wetenschappelijke tijdschriften uw naam niet kenbaar gemaakt wordt.

Recht op informatie: U heeft het recht om informatie op te vragen in verband met deze studie.

Recht op stopzetten deelname: Op elk moment heeft u de mogelijkheid om uw deelname aan de studie stop te zetten.

Ik ga akkoord met deelname aan deze studie:

Handtekening deelnemer Datum

De onderzoeker verklaart hierbij de studie uit te voeren volgens de voorwaarden, beschreven in dit document.

Handtekening Datum

Onderzoeker: Dr. Philip Thys – Huisarts in opleiding – Neerstraat 97, 3980 Tessenderlo - 013/32.22.42

Script diepte-interview bij orthopedisch chirurgen

Onderzoeksvraag

1) Wat zijn de huidige barrières en facilitatoren in guideline-adherence bij orthopedisch chirurgen betreffende de behandeling van patiënten met artrose van de knie.

2) Waaruit bestaan de onderliggende redenen om bepaalde handelingen/ingrepen uit te voeren die niet geïndiceerd zijn volgens de guidelines of zelfs niet opgenomen zijn in de guidelines.

3) Wat is het perspectief van de orthopedisch chirurg op de geleverde zorg door de huisarts in het kader van patiënten met artrose van de knie, en welke verbeteringen in beleid door de huisarts zouden zij graag zien.

Script

1) Sample: Orthopedisch chirurgen (in opleiding)

2) Praktisch: Diepte-interviews op variabele locaties met behulp van een audiotape.

3) Introductie:

Alvast hartelijk dank voor participatie aan deze studie,
Dit onderzoek kadert in een kwaliteitsverbeteringsproject betreffende de aanpak en behandeling van knieartrose, uitgaande van het Academisch Centrum voor Huisartsgeneeskunde van de KU Leuven. Rond de aanpak en behandeling van knieartrose werd reeds een groot aantal evidence-based richtlijnen met bijbehorende aanbevelingen gepubliceerd. Toch merken we enerzijds dat deze aanbevelingen niet steeds gevolgd worden en anderzijds dat er een aantal handelingen worden verricht die niet in de richtlijnen zijn opgenomen. Het doel van dit project is een beeld te krijgen van de barrières en de facilitatoren in het evidence-based handelen bij knieartrose. Eerder onderzoek heeft ons reeds een beeld gegeven omtrent deze problematiek bij huisartsen en kinesitherapeuten. Door deze bevraging ook uit te voeren bij orthopedisch chirurgen hopen we zo het beeld compleet te krijgen en uiteindelijk een betere samenwerking en kwalitatief betere zorg te kunnen bekomen. Het interview wordt opgenomen op audiotape zodat ikzelf, samen met mijn collega's, de gegevens nadien kan verwerken. Het interview is volledig anoniem. Uw identiteit wordt niet meegenomen bij de verwerking van de gegevens. Als u op een gegeven moment het interview zou willen stopzetten, is dit uiteraard mogelijk.
Als u daarmee akkoord kan gaan, zou ik u willen vragen om het informed consent te tekenen. Het project werd goedgekeurd door de ethische commissie van het UZ Leuven.

Domeinen

Barrières en facilatoren aangaande het volgen van de richtlijnen zijn zeer belangrijk in de implementatie van de guideline. Ze geven ons een beter beeld betreffende de huidige struikelblokken in het toepassen van de richtlijn in de dagelijkse praktijk.

In ons onderzoek maken wij gebruik van een onderverdeling in 4 domeinen van alle barrières en facilatoren en proberen te achterhalen welke domeinen er belangrijk zijn per aanbeveling.

De 4 domeinen waarin de barrières en facilatoren zijn in onderverdeeld zijn:

1) De **guideline**
   -Zijn de guidelines goed beschikbaar?
   -Is de guideline duidelijk in zijn aanbevelingen?
   -Is de guideline voldoende evidence-based?
   -Is de guideline goed toe te passen in de praktijk? (te duur/te veel tijd/te lange tekst…)

2) De **professional**
   -Beperkte kennis van de guideline.
   -Gelooft niet in de guideline.
   -Uit ervaring andere conclusies dan de guideline.
   -Blijft hangen in oude gewoontes.
   -Snel toegeven aan de vraag van de patiënt.
   -Tijdsdruk.

3) De **patiënt**
   -Wilt snel een definitieve oplossing.
   -Wilt er zelf geen moeite voor doen.
   -Wilt zelf invasieve onderzoeken.

4) De **context/setting**
   -Kostprijs van de aanbevelingen.
   -Leidinggevende figuren leggen een andere behandeling op.
   -Tegenstrijdige richtlijnen

Achtergrond orthopedist (in opleiding)

- Geslacht: M / V
- Leeftijd?
- Aantal jaren ervaring?
- Type centrum waar werkzaam?
- In opleiding of volwaardig orthopedist?
- Gespecialiseerd in de knie als gewricht?

Algemeen

- Welke richtlijnen betreffende het management van knieartrose zijn bij u gekend?
- Wat factoren zijn voor u bepalend in het al dan niet toepassen van deze richtlijnen per domein? Liggen deze factoren op het gebied van domein 1-4?

Diagnosestelling

Er is een sterk verschil tussen orthopedisten betreffende hun beleid bij een initiële diagnose van knieartrose. We zien dat dit verschil in zowel diagnosestelling als in bijkomende medische onderzoeken aanwezig is.

- Hoe stelt u in de dagelijkse praktijk de diagnose van knieartrose bij nieuwe patiënten?
- Welke factoren betreffende de 4 domeinen beïnvloeden u of bij collega orthopedisten bij de diagnosestelling van knieartrose?

Verdere beeldvorming

Naast een standaard radiografische opname van de knie kan er nog verdere medische beeldvorming worden aangevraagd in de vorm van een CT, MRI of andere alternatieven.

- Wat is uw mening omtrent de toegevoegde waarde van een RX en verdere beeldvorming in de diagnosestelling van knieartrose?
- Welke factoren betreffende de 4 domeinen bepalen of u, of uw collega orthopedisten, al dan niet een RX of verdere beeldvorming gaat uitvoeren?

Intermittente kniezwelling

Patiënten met een artrotische knie kunnen intermittent zwelling van de knie vertonen.

- Wat is uw mening betreffende het puncteren van een gezwollen knie?
- Wat is uw mening betreffende de analyse van het punctievocht?
- Welke factoren betreffende de 4 domeinen zijn bepalend voor u of uw collega's of u al dan niet een punctie uitvoert?
- Welke factoren betreffende de 4 domeinen zijn bepalend voor u of uw collega's of u al dan niet een analyse van het punctievocht uitvoert?

Educatie/lifestyle/hulpmiddelen

Naast de medicamenteuze behandeling van knieartrose kan er nog extra hulp worden geboden door het informeren van de patiënt op verschillende aspecten zoals hulpmiddelen, lifestyle changes, risicofactoren, etc…

- Welke factoren betreffende de 4 domeinen bepalen dat u of uw collega's al dan niet aan educatie doen op vlak van lifestyle?
- Welk belang hechten u aan de verschillende deelaspecten: gewichtsverlies, oefentherapie, hulpmiddelen en schoeisel.
- In hoeverre bepaalt dit uw verder handelen op deze gebieden?
- Wie vindt u het best geplaatst om deze educatie te geven en te begeleiden.

Bracing

Een van de mogelijke hulpmiddelen bij de artrotische patiënt is het aanmeten van een brace.

- Wat is uw mening betreffende het gebruik van een brace in het kader van knieartrose?
- Welke factoren betreffende de 4 domeinen bepalen dat u of uw collega's al dan niet een brace zal voorschrijven in deze setting.

Fysische activiteit

Als onderdeel van deze lifestyle changes die eerder werden aangehaald zien we dat het belangrijk is de patiënt te activeren.

- Wat is uw mening t.o.v. oefentherapie en beweging in de behandeling van knieartrose?
- Hoe gaat u te werk in het activeren van de patiënt?

- Welke adviezen geeft u de patiënt mee voor beweging/sport thuis?
- Zijn er specifieke bewegingen/sporten die u de patiënt afraadt of aanraadt?
- Hoe stimuleert u de patiënten om na de initiële oefenperiode dit te blijven volhouden?

- Welke factoren betreffende de 4 domeinen bepalen voor u of uw collega's in het al dan niet activeren van de patiënt?
- Welke factoren betreffende de 4 domeinen bepalen voor u of uw collega's in het al dan niet doorverwijzen van een patiënt naar een kinesitherapeut?
- Welke behandeling vermeldt u dan op dit voorschrift?
- Zijn er factoren betreffende de 4 domeinen die voor u of uw collega's leiden tot het individueel aanpassen van de behandeling op het voorschrift?
- Welk aantal en frequentie vermeld u op het voorschrift?
- Zijn er factoren betreffende de 4 domeinen die voor u of uw collega's leiden tot het individueel aanpassen van het aantal en de frequentie op het voorschrift?

Farmacologische behandeling:

We zien een grote discrepantie in de initiële aanpak van knieartrose. Waar sommige de behandeling starten met paracetamol, worden andere patiënten meteen op NSAID's of opioiden gezet.

- Wat is uw aanpak betreffende de initiële medicamenteuze behandeling van knieartrose?
- Welke factoren betreffende de 4 domeinen zijn voor u bepalend in de initiële medicamenteuze aanpak van knieartrose?
- Indien deze initiële behandeling niet succesvol blijkt te zijn, hoe gaat u deze dan aanpassen? Dit kan zijn een verandering in dosage, een verandering van medicatie of een combinatie van beide.

- Indien u de patiënt behandeld d.m.v. NSAID's: hoe gaat u dan te werk?
- Welk NSAID zal u opstarten bij knieartrose en welke factoren zijn bepalend in deze keuze?
- Welke factoren betreffende de 4 domeinen zijn voor u en uw collega's bepalend om NSAID's continu of intermittent te geven.
- houdt u rekening met mogelijke risicofactoren en hoe gaat u hier mee om?
    - Bij een VG van een maagulcus.
    - Bij hartfalen, cardiale ischemie, renale insufficiëntie.
    - Andere

- Hoe staan u en uw collega's ten opzichte van het gebruik van topische NSAID preparaten in deze setting?
- Welke factoren betreffende de 4 domeinen bepalen dat u of uw collega's dit al dan niet zou voorstellen aan uw patiënten?

- Welke factoren betreffende de 4 domeinen bepalen dat u of uw collega's al dan niet opioiden gebruiken in de behandeling van knieartrose?
- Maakt u een onderscheid tussen de sterk- en zwak-werkzame opioiden, en hoe uit dit onderscheid zich in uw voorschrijfgedrag?

Supplementatie door middel van chondroïtine en glucosamine wordt door bepaalde artsen voorgeschreven, anderen zijn hier echter geen voorstander van en raden dit niet aan aan patiënten.

- Wat is uw mening omtrent het gebruik van deze supplementen in het kader van knieartrose?
- Welke factoren betreffende de 4 domeinen bepalen dat u of uw collega's dit al dan niet voorschrijven aan de patiënt?

Invasieve behandeling:

Bij falen van orale therapie zien we ook een toediening van intra-articulaire infiltraties met cortisone-preparaten en hyaluronzuur-preparaten.

- Wat is volgens u de plaats van beide infiltraties in de behandeling van knieartrose?
- Welke factoren bepalen dat u of uw collega's al dan niet een infiltratie gaat toedienen met
  a) cortisone b) hyaluronzuur
- Welke factoren betreffende de 4 domeinen bepalen het protocol dat u hanteert bij toediening van deze preparaten? (interval, aantal, frequentie)

Operatieve behandeling:

Na uitputting van alle conservatieve opties zien we dat er vaak wordt overgegaan op een arthroscopie van de artrotische knie.

- Hoe ziet u de plaats van arthroscopisch ingrijpen bij een artrotische knie?
- Welke factoren betreffende de 4 domeinen zijn voor u en uw collega's bepalend in het al dan niet uitvoeren van een arthroscopie?

We zien momenteel zeer goede resultaten met betrekking tot de behandeling van knieartrose door middel van prothesechirurgie.

- Welke factoren z betreffende de 4 domeinen ijn voor u bepalend in het al dan niet ter sprake brengen van prothesechirurgie?
- Welke opties voor prothesechirurgie worden overwogen (TKP, UKP,...) en welke factoren betreffende de 4 domeinen zijn hierin bepalend?

We zien ook nog de toepassing van andere chirurgische opties in de behandeling van knieartrose.

- Welke factoren betreffende de 4 domeinen bepalen het al dan niet toepassen van variserende/valgiserende chirurgie bij knieartrose?
- Wat is volgens u de plaats van alternatieve chirurgische opties bij knieartrose zoals ice-picking, autologe chondrocyten transplantatie, ed. (Niet bij lokaal kraakbeendefect!)
- Welke factoren betreffende de 4 domeinen doen u of uw collega's neigen naar een alternatief chirurgisch ingrijpen?

Follow-up:

Er is slechts beperkte literatuur omtrent de correcte follow-up van knieartrose, met het ontbreken van concrete richtlijnen tot gevolg.

- Wat is uw mening betreffende de follow-up van patiënten met knieartrose?
- Hoe gebeurt dit in het algemeen?
- Welke factoren betreffende de 4 domeinen spelen hierin een rol?
- Hoe ziet u de rol van de andere actoren van de gezondheidszorg in de opvolging van deze patiënten?

Besluit:

- Zijn er bepaalde veranderingen die u graag zou willen zien in de huidige diagnose, behandeling en opvolging van knieartrose zoals u deze in de dagdagelijkse praktijk tegenkomt?
- Hoe ziet u de rol en de plaats van de andere actoren in de gezondheidszorg bij knieartrose?
- Welke veranderingen zou u graag zien betreffende:
    - Taken die de verschillende actoren op zich nemen.
    - De samenwerking tussen der verschillende actoren
- Zijn er nog elementen mbt de aanpak van knieartrose die in dit interview niet aan bod kwamen en die u belangrijk acht?

Bijlage 5: Recommendations on knee OA care

Table 1. Recommendations on knee OA care, transformable into quality indicators.

Recommendation
Diagnosis
1. If a patient is clinically diagnosed with knee OA and suffering from pain resistant to conservative treatment with acetaminophen and/or NSAID, then a radiography (weight-bearing, semiflexed PA, plus lateral and skyline view) of the symptomatic knee should be taken for the morphological assessment and grading of knee OA (especially to detect unicompartmental OA, for which treatment modalities may differ). CT and MRI scan should not be used.
2. If a patient with knee OA has a recurrent clinically evident effusion, then he/she should be further assessed (with aspiration and analysis of synovial fluid) in order to differentiate from inflammation caused by other arthritis.
Lifestyle/education/devices
3. If a patient has knee OA, he/she should be given information access and education about the objectives of treatment and the importance of changes in lifestyle, exercise, pacing of activities, weight reduction, and other measures to unload the damaged joints.
4. If a patient with knee OA is overweight, then he/she should be encouraged to lose weight and maintain his/her weight at a lower level.
5. If a patient with knee OA is following exercise therapy, then the exercise therapy should be combined with education/self-management interventions to improve patients' mental and physical performance and to alleviate pain.
6. If a patient has knee OA, then a brace should not be prescribed (except in unicompartmental knee OA with axial deviation).
Therapy
7. If a patient has knee OA, then exercise therapy should be prescribed, including at least muscle strengthening, aerobic exercises and functional exercises, and combined with range of motion exercises in case of range of motion restrictions.
8. If a patient has symptomatic knee OA, then he/she has to be referred to a physical therapist for instruction of the patient in appropriate exercises, for motivation of the patient to implement exercise and adhere to exercise, and to evaluate performance.
9. If a patient with knee OA is following exercise therapy, then the content and intensity of the exercise program should be tailored to the patient's individual goals in terms of limitations of activity and restrictions of participation.
10. If a patient with knee OA is following exercise therapy, then the treatment sessions should be spread over longer periods with lower frequencies in the later stages of the exercise program to facilitate the transition from exercise therapy to independent exercising and maintaining sufficient level of physical activity.
11. If a patient with knee OA is following exercise therapy, then he/she should be referred to regular community exercise and sports activities after a period of supervised exercise.
12. If a patient has knee OA, then acetaminophen up to 3 g/day should be used as the initial oral analgesic.
13. If a patient has knee OA and there is no adequate response on acetaminophen, or there is severe pain and/or inflammation, then oral NSAID should be used.
14. If a patient has knee OA, then chondroitin and glucosamine-chondroitin combination products should not be used.
15. If NSAID are used in a patient with knee OA, then they should be used intermittently (max 3 weeks sustained use) and at the lowest effective dose.
16. If a patient with knee OA and a history of bleeding gastric ulcers has a need for NSAID, then either a COX-2 selective agent or a non-selective NSAID with coprescription of a proton pump inhibitor/misoprostol should be used instead of a non-selective NSAID.
17. If a patient with knee OA has heart failure grade 2–4, ischemic heart disease, or renal insufficiency with a GFR < 40 ml/min, then NSAID should not be used. In case of other cardiovascular risk factors (e.g., hypertension, …), NSAID should be used with caution.
18. If a patient has knee OA, then strong opioids (oxymorphone, oxycodone, fentanyl, morphine sulfate) should not be used.
19. If a patient has knee OA, then arthroscopic interventions are not recommended. Coexisting meniscal lesions should not be treated. Only in case of locking of the knee from a large meniscal fragment or a loose body or an extension loss from an anterior anvil osteophyte is arthroscopic treatment indicated.
20a. If a patient with knee OA is not obtaining adequate pain relief and functional improvement, then he/she should be considered for joint replacement.
b. If a patient has unicompartmental knee OA, then a unicompartmental knee replacement should be considered.
Followup
21. If a patient with knee OA is following exercise therapy, then regular evaluations by the physiotherapist are necessary. To make the switchover from a supervised to an autonomous program, an evaluation session should be performed every 3 months in the first year, every 6 months in the second year, and once per year afterward.

OA: osteoarthritis; NSAID: nonsteroidal antiinflammatory drug; PA: posteroanterior; CT: computerized tomography; COX-2: cyclooxygenase-2; GFR: glomerular filtration rate; MRI: magnetic resonance imaging.

Referentie: *Grypdonck L, Aertgeerts B, Luyten F, Wollersheim H, et al. Development of quality indicators for an integrated approach of knee osteoarthritis. J Rheumatol. 2014 Jun;41(6):1155-62.*

Bijlage 6: COREQ checklist

Table 1 Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

No	Item	Guide questions/description
Domain 1: Research team and reflexivity		
Personal Characteristics		
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?
2.	Credentials	What were the researcher's credentials? *E.g. PhD, MD*
3.	Occupation	What was their occupation at the time of the study?
4.	Gender	Was the researcher male or female?
5.	Experience and training	What experience or training did the researcher have?
Relationship with participants		
6.	Relationship established	Was a relationship established prior to study commencement?
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. *personal goals, reasons for doing the research*
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. *Bias, assumptions, reasons and interests in the research topic*
Domain 2: study design		
Theoretical framework		
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis*
Participant selection		
10.	Sampling	How were participants selected? *e.g. purposive, convenience, consecutive, snowball*
11.	Method of approach	How were participants approached? e.g. *face-to-face, telephone, mail, email*
12.	Sample size	How many participants were in the study?
13.	Non-participation	How many people refused to participate or dropped out? Reasons?
Setting		
14.	Setting of data collection	Where was the data collected? e.g. *home, clinic, workplace*
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?
16.	Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*
Data collection		
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?
20.	Field notes	Were field notes made during and/or after the interview or focus group?
21.	Duration	What was the duration of the interviews or focus group?
22.	Data saturation	Was data saturation discussed?
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?
Domain 3: analysis and findingsz		
Data analysis		
24.	Number of data coders	How many data coders coded the data?
25.	Description of the coding tree	Did authors provide a description of the coding tree?
26.	Derivation of themes	Were themes identified in advance or derived from the data?
27.	Software	What software, if applicable, was used to manage the data?
28.	Participant checking	Did participants provide feedback on the findings?
Reporting		
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. *participant number*
30.	Data and findings consistent	Was there consistency between the data presented and the findings?
31.	Clarity of major themes	Were major themes clearly presented in the findings?
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?

Referentie: *Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007 Dec;19(6):349-57.*