Review

Osteoarthritis guidelines: Barriers to implementation and solutions

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ABSTRACT

Osteoarthritis (OA) is a leading cause of disability worldwide. Clinical practice guidelines (CPGs) have been developed to facilitate improved OA management. Scientific communities worldwide have proposed CPGs for OA treatment. Despite the number of highly prominent guidelines available and their remarkable consistency, their uptake has been suboptimal. Possibly because of the multitude of barriers related to the implementation of CPGs. For example, different guidelines show contradictions, some lack evidence, and they lack a hierarchy or tools to facilitate their translation and application. Also, the guidelines do not acknowledge the effect of comorbidities on choosing the treatments. Finally, poor integration of multidisciplinary services within and across healthcare settings is a major barrier to the effective implementation of management guidelines. Here we describe the main problems related to the OA guidelines and some solutions so as to offer some guidance on the elaboration of future CPGs and their implementation in primary care.

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1. Introduction

Several international or domestic scientific groups have focused on the need to improve the management of osteoarthritis (OA) because OA is a leading cause of disability worldwide [1], it has a high and increasing prevalence [2] and it is a chronic and incurable disease [3]. Consequently, OA is associated with an extremely high economic burden and is considered a priority problem for public health internationally [4].

Clinical practice guidelines (CPGs) have been published to improve OA management. CPGs are defined as a structured set of recommendations informed by a systematic review of the most relevant evidence available. The guidelines aim to guide clinicians in selecting the best care, taking into account the benefits and harms of therapies and the strength of the recommendations appraised [5]. According to Lim and Doherty [6] the 3 main types of evidence to guide clinical decision-making are research evidence, expert opinion or experience, and patient opinion or acceptability. The authors affirmed that best practice occurs with agreement of the 3 types.

Scientific communities around the world have proposed CPGs for OA treatment. The leading groups are the American Academy of Orthopaedic Surgeons (AAOS) [7], European League Against Rheumatism (EULAR) [8], US National Institute for Health and Care Excellence (NICE) [9], OA Research Society International (OARSI) [10] and American College of Rheumatology (ACR) [11]. The guidelines differ in the joints considered (knee, hip and/or hand) and the types of treatments proposed (pharmacological, nonpharmacological, nonsurgical and general). Despite the multitude of available robust guidelines, their uptake has been suboptimal [12].

To offer some guidance on the elaboration of future CPGs, we need to examine the main limitations of OA guidelines and their solutions. Thus, the aim of this article is to provide a critical analysis of OA CPGs, barriers to implementation and possible solutions.

2. Background

Efforts have been made to identify the reasons for the continual gap between the CPG recommendations and clinical practice. A systematic review of recommendations and guidelines for the
management of OA found no lack of quality but rather a failure of dissemination and implementation [13]. The knowledge about the specific issues is essential for developing solutions. Thus, we organised this paper by these issues. Table 1 summarises the main problems and solutions, which were based on the referenced articles and the authors’ knowledge.

3. Target joint

Most CPGs are directed toward knee and hip OA; however, some recommendations are often specific to knee OA and extrapolated to hip OA. As noted by Bennell and Hinman [14], some findings cannot be directly translated to hip OA because of differences in biomechanics, impairments, rapidity of OA progression and risk factors. Therefore, the extrapolated recommendations are mainly based on expert opinion. This fact indicates limited evidence for the management of hip OA.

4. Contradictions among CPG recommendations

Some recommendations are contradictory, which raises confusion and debate about their validity. As an example, the recommendation for intra-articular hyaluronic acid therapy is inconsistent among guidelines. A recent study [15] indicated that the reason for this discrepancy is the variable methodology used in CPG development. The authors asserted that only a standard and appropriate methodology for developing OA CPGs will prevent conflicting recommendations. Other areas of inconsistency are the use of acupuncture, knee braces, heel wedges, intra-articular hyaluronic, glucosamine or chondroitin [13] and balneotherapy [16]. A clear message must be transmitted to clinicians because the uncertainty in advice about therapy prevents the most appropriate decisions being made.

5. Transparency of CPGs

Nonstandardized CPG development results in substantial variation in clinical practice recommendations. With this aim, the US National Academy of Medicine created the Committee on Standards for Developing Trustworthy Clinical Practice Guidelines [5]. The committee developed 8 standards involving: 1) establishing transparency, 2) management of conflict of interest, 3) composition of CPG development groups, 4) systematic review intersection, 5) establishing an evidence base for and rating the strength of recommendations, 6) articulation of recommendations, 7) external review and 8) updating. The objective of these standards is to increase the quality and trustworthiness of CPGs. The committee believes that if adopted by guidelines developers, the standards will improve healthcare quality and patient outcomes [5]. One of the major problems today is probably the management of conflict of interest. As is usual, the best experts have many such conflicts, so rating the strength of recommendations by high-level experts with no conflicts seems challenging.

6. End users

CPG recommendations are directed predominantly to primary care, so the general practitioner (GP) typically represents the main end user. Therefore, the needs of GPs should be determined so that they are correctly addressed. A survey involving GPs identified that achieving adequate pain control was the most frequently cited challenge in OA management, followed by lack of time and encouraging patients to make lifestyle changes [17]. Solutions identified by GPs included more time to see patients, collaboration with a specialist team, a need for improved tools to aid patient communications about risk, accredited training courses for GPs and more staff and resources [17]. Another study explored GP attitudes towards CPGs and found the need for shorter CPG formats, flowcharts or algorithms, and single-page checklists [18]. Knowing GP preferences is an important strategy to accurately target this population.

7. Tools for implementation

Guidelines must be offered in a user-friendly format to facilitate adherence. In their last iteration, the ACR and OARSI guidelines

<table>
<thead>
<tr>
<th>Problems</th>
<th>Solutions</th>
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</thead>
<tbody>
<tr>
<td><strong>Literature limitation</strong></td>
<td><strong>Literature limitation</strong></td>
</tr>
<tr>
<td>Poor evidence of RCTs specific for hip OA</td>
<td>Systematic review and meta-analysis of controversy therapies</td>
</tr>
<tr>
<td>Poor evidence of therapies for patients with comorbidities</td>
<td>Inclusion of patients with comorbidities in RCTs to better represent clinical scenarios</td>
</tr>
<tr>
<td>Contradictory information about some therapies that lead to contradictory recommendations among guidelines</td>
<td>Studies to test cost-effectiveness of CPG recommendations in different models of care</td>
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<tr>
<td><strong>External limitation</strong></td>
<td><strong>External limitation</strong></td>
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<tr>
<td>Lack of time of GP to see patients</td>
<td>More time for GPs to see patients</td>
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<tr>
<td>Resistance of patients to lifestyle changes</td>
<td>Effective multidisciplinary teams</td>
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<tr>
<td>Lack of skills of some physicians</td>
<td>Accredited training courses for GPs</td>
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<tr>
<td>Limited access of patients to other health professionals</td>
<td>Development of an efficacious model of care that allows CPGs implementation</td>
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<tr>
<td>Patients beliefs</td>
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<tr>
<td>Inefficient referral process</td>
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<tr>
<td>Inadequate model of care to implement CPGs</td>
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<tr>
<td>Poor integration of multidisciplinary settings</td>
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<tr>
<td><strong>CPGs limitations</strong></td>
<td><strong>CPGs limitations</strong></td>
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<tr>
<td>Absence of standardized methodology</td>
<td>Guide future research in order to increase research value and decrease waste with redundant work</td>
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<tr>
<td>Poor recommendation description</td>
<td>Development of tools to aid communication with patient</td>
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<tr>
<td>Illogical format for presentation of recommendations</td>
<td>Flowchart, algorithm or single page check-list to translate CPGs</td>
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<tr>
<td>Poor information about management of OA with comorbidities</td>
<td>Standardise CPG development to allow trustworthy and transparent guidelines</td>
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<tr>
<td>Disease driven guidelines</td>
<td>Develop patient driven CPGs rather than disease driven</td>
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<tr>
<td>Absence of economic aspects of recommendations</td>
<td>Include cost-conscious aspects of each recommendation</td>
</tr>
<tr>
<td>User-friendly format</td>
<td>Structured and logical presentation of recommendations</td>
</tr>
<tr>
<td>Detailed description of recommendations including, prescription, dosage and clinical scenario</td>
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RCT: randomized controlled trial; GP: general practitioner.
began to propose clinical scenarios so as to move from evidence-based medicine to daily practice [10,11]. The European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO) proposed a treatment algorithm including a core set of treatments, prioritizing different interventions taking into account the presence of comorbidities, and patient symptoms. This paper was the first effort to produce a detailed algorithm to guide physicians through the different steps of treatment for an individual patient [19]. Considering the short time that GPs have to see patients, algorithms can quickly and easily guide clinicians and patients to adopt the best care possible.

8. Barriers to implementation

Recommendations must be clear and with an action implied to allow their correct implementation. Loyola-Sanchez et al. [20] identified the barriers to implementing a guideline for OA management in Mexico at the local primary care level. Many of the barriers identified are common to worldwide. For example, the settings in which several recommendations should be applied are not described and how the recommendations are presented lacks sequential logic. The authors suggested that guidelines should provide detailed statements, informing the advised prescription, dosage and clinical scenario for each recommendation. Problems with clarity and conciseness negatively affect the application within primary care practice.

Implementation failure is not only the fault of CPGs. As identified by Loyola-Sanchez et al. [19], 3 main types of external barriers are:

- individual factors (limitations of physician skills and patient beliefs);
- organizational factors (insufficient time and inefficient referral processes);
- system-related factors (inadequate model of care).

Therefore, effective CPG implementation requires complex changes that involve more than just content.

9. Multidisciplinary approach

Management guidelines relate to the healthcare provided by a variety of different health professionals. Brand and Cox [21] investigated the barriers to effective implementation of best-practice recommendations for nonsurgical management of OA of the hip and knee. The authors identified poor integration of multidisciplinary settings. Patient access to other health professionals and specialists can be an issue in that time pressures are a frequent barrier, which prevents implementation of the best care. The authors concluded that imposing the CPG recommendations within a model of care that does not support them is likely to result in failure of implementation. With this in mind, the Chronic Osteoarthritis Management Initiative (COAMI) aims to improve current OA management by developing a comprehensive and evidence-based model of care [13]. Adherence to guidelines is feasible only with a multidisciplinary approach.

10. Economic aspects

Not considering local socioeconomic and political factors may also result in failure to implement CPGs. To allow the assessment of economic aspects, the ESCEO [22] aims to provide evidence-based recommendations with a cost-conscious awareness. Future CPGs should incorporate these findings, providing more data for the best decision-making. Economic evaluation allows for the appropriate allocation of health resources.

There is a need to assess the feasibility and the effect of CPG implementation at the primary care level. With this in mind, an ongoing study with a published protocol is assessing the clinical and cost-effectiveness of implementing the core recommendations from NICE [23]. More studies should investigate whether the CPG recommendations can be accomplished and under what conditions.

11. Research prioritization

Guidelines have an important role in identifying whether a therapy has limited or contradictory evidence or if it is already well established. CPGs must guide the path of future research via a clear indication of literature gaps. Therefore, detailed recommendations instead of general guidance should be provided, which might make correct implementation difficult. Research value should be increased and waste with redundant work decreased.

12. Disease-driven rather than patient-driven

Guidelines should become patient-focused rather than disease-driven. Current guidelines are challenging to apply to patients with multiple conditions and different phenotypes. The recommendations do not consider whether a comorbidity is present. Therefore, CPGs represent a scenario that is not compatible with clinical practice. In fact, CPGs are only a reflection of the available literature. Often, patients with comorbidities or with a specific phenotype are excluded from many randomised clinical trials. In their last iteration, the OARSI guidelines introduced for the first time the notion of comorbidities to improve the personalization of treatment.

It is important to remember that patient well-being is the research priority, so future clinical trials should consider study criteria that correctly reflect clinical practice.

13. Conclusions

CPGs must be joint-specific and disease-driven rather than patient-driven, their development should be mindful of contradictions among recommendations, and they should adopt criteria that allow for transparency and benefit end users by providing tools for implementation. CPGs should also recognise the barriers to implementation in the current model of care. They must encourage a multidisciplinary approach and provide the economic aspects of treatments. An unexplored role is to guide future research so as to increase research value and decrease waste with redundant work.

CPGs per se are not enough to improve the healthcare management of OA. The guidelines can be enhanced, but we must consider the local context and barriers to implementation and the complexity of changes that must occur before their implementation.

Disclosure of interest

The authors declare that they have no competing interest.

References


