Overview of the OARSI Guidelines For the Management of Hip and Knee Osteoarthritis

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Introduction

Osteoarthritis (OA) is an active disease process involving articular cartilage destruction, subchondral bone thickening, and new bone formation. It is the most common cause of chronic musculoskeletal pain and mobility disability in the elderly worldwide. The hip and knee are the main large joints affected by OA. The chief objective of the management of hip and knee OA is to relieve pain, as there are yet no proven structure- or disease-modifying interventions that slow disease progression or improve joint structure and mobility.

Clinical decision making can benefit from current practice guidelines that are based on the best available evidence. Current practice guidelines such as those produced by the 2007 Osteoarthritis Research Society International (OARSI) are increasingly based on rigorous methodologic review of the available evidence and include a wider stakeholder involvement and judgment about applicability in clinical settings and specific populations. They are up-to-date evidence-based and globally relevant guidelines intended to provide concise, patient-focused expert consensus recommendations for the management of hip and knee OA. The OARSI guidelines can be used in both primary and secondary care settings. The target users of the guidelines are physicians, allied health care professionals, patients and patient representative groups, health care payers, and health care administrators.

This monograph is an overview and critical appraisal of the methods and conclusions of the 2007 OARSI guidelines on nonpharmacologic, pharmacologic, and surgical therapies for OA.
**Overview of Guidelines Development**

The guidelines were developed by an international, multidisciplinary committee of experts following a Delphi process, a structured method for collecting and distilling information through the use of surveys or questionnaires. After a comprehensive search, 110 different interventions for the treatment of hip and/or knee OA were identified and critically appraised. Twenty-five carefully worded treatment propositions were accepted following the Delphi process.

The efficacy of each treatment modality was determined by using the best available evidence (Table 1), where meta-analyses of randomized controlled trials (RCTs) provide the highest quality of evidence, and expert opinions provide the lowest quality of evidence. For example, when multiple levels of evidence (LoEs) were available for a treatment modality, level Ia evidence from meta-analyses of RCTs were used instead of lower LoEs (such as observational studies) to determine efficacy. If there were more than one study in the same LoE, the study with the best quality score was used.

Of the 25 treatment modalities, 13 (52%) were based on LoE I evidence, 2 (8%) on LoE II, 1 (4%) on LoE III, 4 (16%) on LoE IV, and 5 (20%) were hybrid (both levels I and IV).

The strength of recommendation (SOR) for each proposition was determined by a committee, based on a summary of individual ratings, using a visual analog scale. Conclusions were based on a combination of the best available evidence and expert opinion, taking into consideration patient preferences and values. These guidelines provide the most current recommendations for management of OA in primary and secondary care settings, taking into consideration each carefully worded proposition and its caveats.

**Overview of the Treatment Modalities**

The OARSI guidelines include 25 general nonpharmacologic, pharmacologic, and surgical recommendations. The first recommends a combination of nonpharmacologic and pharmacologic treatment modalities as optimal treatment for OA. Each of the remaining 24 recommendations is in 1 of 3 treatment categories: nonpharmacologic, pharmacologic, or surgical.

Effective management relies on the appropriate use of available therapies, each of which has only limited efficacy.

**General Modality: Combination of Nonpharmacologic and Pharmacologic Treatment**

The general approach of a combination of self-management, nonpharmacologic, and pharmacologic treatments was recommended universally without formal assessment. It was based on expert opinion (LoE IV) and the SOR was 96%. Both nonpharmacologic and pharmacologic modalities have been found to be important in the relief of pain and in the cost-effective management of the disease.

**Nonpharmacologic Modalities**

Nonpharmacologic modalities include 12 recommendations with the LoEs and SORs shown in Table 2.

Education and self-management is a key modality in the treatment of OA, as patients need to understand the nature and history of, and treatment options for, the condition in order to make informed decisions regarding their treatment. Many of the nonpharmacologic modalities involve lifestyle changes, exercise, weight loss, and other measures to unload damaged joints, and their implementation can be enhanced by appropriate education and self-management. There is evidence of more pain relief with exercise and weight loss combined than with either intervention alone. Physical aids and support devices significantly improve pain and physical functioning but are probably underused by most physicians. Other modalities such as acupuncture are not accepted in some settings as standard treatment for OA.

**Pharmacologic Modalities**

Nine pharmacologic modalities with LoEs and SORs are listed in Table 3.

Acetaminophen (APAP) is considered the first line of treatment. It may be effective for pain relief but not for stiffness and function. Nonsteroidal anti-inflammatory drugs (NSAIDs) have been shown to be more effective in symptomatic relief, but with more adverse effects. APAP can lead to hepatotoxic toxicity, whereas NSAIDs have gastrointestinal, renal, and cardiovascular safety issues.

Intra-articular injections of corticosteroids have been shown to be most effective in patients with signs of inflammation, synovial effusions, or both. Short-term benefits have been established while long-term efficacy has not been confirmed.

Intra-articular hyaluronates are effective for symptomatic relief. Their effect is delayed but prolonged compared with intra-articular corticosteroids.

To date, no drug has been confirmed as structure- or disease-modifying.

Opioids and narcotic analgesics are effective on
refractory pain, but there are concerns about potential addiction.5

**Surgical Modalities**

Surgical interventions are reserved for patients in whom other modalities have failed and uncontrolled pain and severe restrictions in joint mobility persist.4,5 The 5 surgical recommendations are listed in Table 4.

**Clinical Implications**

Clinical practice guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances.7,8 The goal of guidelines is to narrow the gap between research and practice by improving the quality of health care and decreasing costs.20 Clinical applicability and practicality of guidelines depend on available evidence and expert judgment regarding their relevance to a particular setting, how transferable they are from one setting to another, and how inclusive they are of appropriately defined patient populations. Additionally, the trade-off between additional benefit and cost, as well as patient values and preferences, would influence the applicability and practicality of guidelines.8,21-23

Twenty-three pre-existing clinical practice guidelines with 51 potential treatment modalities were identified during the development process of the OARSI guidelines. Variations in quality and contents made their clinical applicability in different settings questionable. Six were predominantly based on opinion, 5 on evidence, and 12 on a combination of both. Eight were specific for knee, 1 for hip, and the majority did not separate hip and knee OA. Thirteen of these guidelines were developed for specific settings (5 for primary care, 3 for rheumatology practices, 3 for physiotherapy, and 2 for orthopedic settings); and 10 did not specify target users.

The current OARSI guidelines include 25 carefully worded treatment propositions that are flexible and can be adapted in different health care settings and delivery systems. Adapting guidelines to local settings and delivery systems is probably inevitable and may be useful, as doing so takes into consideration other

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### Table 2. Nonpharmacologic Modalities

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<thead>
<tr>
<th>Modality</th>
<th>LoE; SOR</th>
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<tr>
<td>Education and self-management</td>
<td>Ia; 97%</td>
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<tr>
<td>Regular telephone contact</td>
<td>Ia; 66%</td>
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<tr>
<td>Referral to a physical therapist</td>
<td>IV; 89%</td>
</tr>
<tr>
<td>Aerobic, muscle-strengthening, and water-based exercises</td>
<td>Ia for knee and IV for hip; 96%</td>
</tr>
<tr>
<td>Weight reduction</td>
<td>Ia; 96%</td>
</tr>
<tr>
<td>Walking aids</td>
<td>IV; 90%</td>
</tr>
<tr>
<td>Knee braces</td>
<td>Ia; 76%</td>
</tr>
<tr>
<td>Footwear and insoles</td>
<td>Ia for insoles and IV for footwear; 77%</td>
</tr>
<tr>
<td>Thermal modalities</td>
<td>Ia; 64%</td>
</tr>
<tr>
<td>Transcutaneous electrical stimulation</td>
<td>Ia; 58%</td>
</tr>
<tr>
<td>Acupuncture</td>
<td>Ia; 59%</td>
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### Table 3. Pharmacologic Modalities

<table>
<thead>
<tr>
<th>Modality</th>
<th>LoE; SOR</th>
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</thead>
<tbody>
<tr>
<td>Use of acetaminophen</td>
<td>Ia for knee and IV for hip; 92%</td>
</tr>
<tr>
<td>Nonselective and selective oral nonsteroidal anti-inflammatory drugs (NSAIDs)</td>
<td>Ia; 93%</td>
</tr>
<tr>
<td>Topical NSAIDs and capsaicin</td>
<td>Ia; 85%</td>
</tr>
<tr>
<td>Intra-articular injection of corticosteroids</td>
<td>Ia for knee and IV for hip; 78%</td>
</tr>
<tr>
<td>Intra-articular injections of hyaluronans</td>
<td>Ia; 64%</td>
</tr>
<tr>
<td>Glucosamine and/or chondroitin sulphate for symptom relief</td>
<td>Ia; 63%</td>
</tr>
<tr>
<td>Glucosamine sulphate, chondroitin sulphate, and/or diacerein for possible structure-modifying effects</td>
<td>Ib; 41%</td>
</tr>
<tr>
<td>Weak opioids</td>
<td>Ia; 82%</td>
</tr>
<tr>
<td>Narcotic analgesics for the treatment of refractory pain</td>
<td>IV; 82%</td>
</tr>
</tbody>
</table>

### Table 4. 5 Surgical Modalities

<table>
<thead>
<tr>
<th>Modality</th>
<th>LoE; SOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total joint replacement</td>
<td>III; 96%</td>
</tr>
<tr>
<td>Unicompartmental knee replacement</td>
<td>IIb; 76%</td>
</tr>
<tr>
<td>Osteotomy and joint-preserving surgical procedures</td>
<td>IIb; 75%</td>
</tr>
<tr>
<td>Joint lavage and arthroscopic debridement in knee OA</td>
<td>Ib; 60%</td>
</tr>
<tr>
<td>Joint fusion as a salvage procedure when joint replacement has failed</td>
<td>IV; 69%</td>
</tr>
</tbody>
</table>
specific factors such as important differences in patient needs, values, and preferences; costs and the availability of resources; and health care policies of which the guideline developers may not be aware.22,23 Guidelines produced in one setting can be adapted using the ADAPTE framework to enable their use in a different cultural and/or organizational context.24 This reduces duplication of effort, enhances efficiency, and promotes use of quality guideline recommendations.

Conclusions

The OARSI guidelines emphasize the following aspects of their development:

Available research evidence: The most current evidence was considered. The grading of evidence was based on the hierarchy of evidence and the strength of the recommendation. The guidelines were evidence-led and clinically supported.

Patient-focused: Patient values and preferences regarding tolerance, acceptability, and adherence to treatment were taken into consideration.

Global relevance: The recommendations are clear and flexible enough to be adapted to different practice settings (primary and secondary care settings) and locales (national and regional levels).

The OARSI guidelines can be used by health care providers in both primary and secondary care settings to guide the management of patients with OA of the hip and/or knee. The guidelines need to be modified and adapted in relation to national and regional variations. They are freely accessible and published with a commentary to assist with interpretation.

The OARSI guidelines end with a recommendation for audit to assess current treatment of OA of the hip and knee in primary care and specialist practices throughout the world, as well as the impact of implementation on clinical outcomes.11 Such an assessment is necessary and will help to determine whether and when an update is required.

References


