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RESEARCH ARTICLE

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Topical nonsteroidal anti-inflammatory drugs for management of osteoarthritis pain: A consensus recommendation

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Abstract

Osteoarthritis (OA) contributes to significant medical and socioeconomic burden in many populations. Its prevalence is expected to rise continuously owing to the combined effects of aging and increase in risk factors, including obesity, physical inactivity, and joint injuries. Pain is a hallmark presentation of OA. Topical nonsteroidal anti-inflammatory drugs (NSAIDs) are recommended by many international guidelines as an early treatment option of the management of osteoarthritic pain. However, the use of topical NSAIDs remains low in Malaysia and appears not to be a preferred agent in managing OA pain by prescribers. There is also limited guidance from local medical bodies on the use of topical NSAIDs to manage OA pain. This consensus recommendation is intended to serve as a practical guide for healthcare practitioners on the use of topical NSAIDs in the management of OA pain. Eight statements and recommendations were finalized covering the areas of OA burden, topical NSAIDs formulations, safety and efficacy of topical NSAIDs, and patient education. Robust evidence is available to support the efficacy and safety of topical NSAIDs, with its benefits further strengthened by ease of use and access. Taking these into consideration, we recommend that healthcare practitioners advocate for the early use of topical NSAIDs over oral NSAIDs for mild-to-moderate OA pain, while engaging in a shared decision-making process with patients for optimal clinical outcomes.

KEYWORDS
consensus development, nonsteroidal anti-inflammatory drugs, osteoarthritis, pain management, topical administration

1 | INTRODUCTION

Osteoarthritis (OA) is the most common form of arthritis, affecting one in three people over the age of 65, with more women affected than men.[1,2] It is estimated that 500 million people or 7% of the global population are living with the condition.[2] Between 1990 and 2019, the number of people affected by OA globally rose by 48%.[2,3] This rise in OA prevalence is partly due to the increasing occurrences of OA risk factors, including obesity, physical inactivity, and joint injury.[4]

OA is characterized by structural changes in the articular cartilage, subchondral bone, ligaments, capsule, synovial membrane, and periarticular muscles.[5,6] Pain is the dominant symptom that leads to functional limitations, poor quality sleep, fatigue, depressed mood, and loss of independence.[4,7] OA is a debilitating disease. It accounts for 2.4% of all years lived with disability (YLD).[1,8] Between 1990 and 2013, a 75% increase was seen in OA-related YLDs worldwide such that currently, OA is the third most rapidly rising condition associated with disability after diabetes and dementia.[8] It is a leading cause of disability in older adults and the primary indication for joint replacement surgery.[4] However, surgery should be reserved for cases in which all appropriate, less invasive options that have been delivered for a reasonable period have not provided adequate symptom relief.

OA can affect any joint, but typically affected areas are the hip, knees, hands, and spine. Clinically, the knee is the most common site of OA, followed by the hand and hip.[9,10] Data also indicates a much higher prevalence of radiographic OA than symptomatic OA, and knee and hand OA as compared to hip OA.[11] Knee OA accounts for approximately 85% of the OA burden worldwide. It is also under-diagnosed and under-treated.[12] Patients with OA report that their concerns are downplayed by health practitioners.[13] Therapeutic nihilism may affect patients and practitioners, with misperceptions that OA is an inevitable part of aging and that there are no effective treatments.[14] Many manage it by avoiding physical activities that exacerbate their pain, which is problematic as physical activity is at present the most effective and safe nonsurgical treatment for hip and knee OA.[4] Current healthcare approaches can swing from neglect of core treatments, such as exercise, weight loss, and education, to use of expensive, unproven therapies for late-stage disease.[14–16]

Despite its considerable personal, economic, and societal toll, OA is generally neglected.[14] The condition does not feature in global strategic plans for noncommunicable diseases, yet OA commonly coexists with heart disease, diabetes, and mental health problems and can worsen the morbidity and mortality associated with these conditions.[14,17]

Recently, a group of Malaysian experts developed a Delphi consensus on managing knee OA, with recommendations advocating an algorithmic approach in the management of patients living with the condition.[18] There is increasing evidence on the benefits of topical NSAIDs and recommendations for its use in managing OA by various international bodies.[19–29] However, the use of topical NSAIDs remains low in Malaysia. There is also limited guidance from local medical bodies on the use of topical NSAIDs to manage OA pain. Available clinical guidelines in Malaysia provide only brief and very general recommendations with no clear guidance on the mechanism of action, efficacy, and safety.[30] A clear gap is therefore present in the efforts to promote appropriate and judicious use of topical NSAIDs in clinical practice.

This consensus recommendation is intended to serve as a practical guide for healthcare practitioners in Malaysia on the use of topical NSAIDs in the management of OA pain; however, it is also relevant to clinicians and pharmacists outside Malaysia. The recommendations are aimed at informing healthcare practitioners about the proper use of topical NSAIDs based on current evidence on pharmacology, efficacy, and safety for the management of OA pain.

2 | METHODS

Members of the working group include orthopedic surgeons and rheumatologists who are key opinion leaders and researchers in Malaysia. Six members were invited to the first meeting to discuss issues on the unmet needs in OA pharmacological treatment, especially in the context of the use of topical NSAIDs based on clinical experience and current literature. Points raised during the meeting were then drafted into recommendation statements. These statements were judged to be the most relevant and beneficial to healthcare professionals in their clinical practice based on the current assessment of knowledge gaps on topical NSAIDs in OA pain management.

Literature to support or refute the statements were gathered based on published evidence. This was done through a search of medical literature in the English language using PubMed, Scopus, and Google Scholar databases. Search terms included: “topical NSAIDs,” “osteoarthritis,” “guidelines,” “recommendation” “randomised controlled trials,” “systematic review,” and “meta-analyses.” Reference lists of retrieved articles were searched.

The recommendations proposed at the meeting were refined based on the evidence gathered. The strength of the recommendations was based on the three-level rating system adapted from the Scottish Intercollegiate Guidelines Network Grading System:

Grade A: At least one meta-analysis, systematic review, or randomized-controlled trial (RCT), or evidence rated as good and directly applicable to the target population.

Grade B: Evidence from well-conducted clinical trials, directly applicable to the target population and demonstrating overall consistency of results; or evidence extrapolated from meta-analysis, systematic review, or RCT.

Grade C: Evidence from expert committee reports, or opinions and/or clinical experiences of respected authorities; indicates absence of directly applicable clinical studies of good quality.

All group members were invited to provide their feedback independently, after which a second meeting was called to review the recommended revisions by the group members. The statements and recommendations were further revised based on the feedback and

justifications received from all members. A unanimous consensus was achieved among all members on the final statements and recommendations presented here.

3 | RESULTS

Panel statements are listed in Table 1.

Statement 1: OA is a substantial health problem with prevalence expected to continuously rise placing a significant burden on national economic and healthcare systems.

Global prevalence of OA is high and is expected to continue increasing in the coming years. OA represents a substantial and increasing health burden with notable implications for the individuals affected and healthcare systems, as well as wider socioeconomic costs. Combined effects of aging and increasing obesity in the global population, along with increasing numbers of joint injuries is increasing the prevalence of OA globally.[11]

Worldwide data show that a significant proportion of women above the age of 65 will have knee OA.[31,32] Consistent with these global trends, the prevalence of OA in Malaysia is also currently high and is expected to rise with an increasingly aging population. Data from 2019 show that 30.8% of population aged 55 and above in Kuala Lumpur have knee OA, with the prevalence highest among Malays, followed by Indians and Chinese.[33] In 2019, the percentage of Malaysians aged ≥65 was estimated to be 6.7%; by 2040, this is expected to significantly increase to 14.5%.[34,35] Additionally, rising obesity and noncommunicable disease rates also contribute to an expected increase in OA prevalence among Malaysians.[36]

Beyond medical costs of managing OA, which was estimated to account for 1%–2.5% of the gross domestic product of various countries,[37] there are also indirect costs attributed to OA. These include costs due to work loss and premature retirement as well as personal costs for patients, such as loss of income and subsequent reductions in personal savings that greatly surpass the direct healthcare costs.[38,39]

Panel recommendation 1: Owing to the expected continuous rise in OA prevalence and its implications to healthcare and personal costs, greater urgency is needed in developing and promoting sustainable approaches to treat OA pain.

Grade of recommendation: A

Statement 2: Use of topical NSAIDs remain low in Malaysia compared with oral NSAIDs despite strong evidence on efficacy and recommendations by international guidelines.

First-line treatment for OA include nonpharmacological methods such as education and self-management, exercise, weight loss for those who are overweight/obese, and walking aids as needed.[11,40] Patient education encompasses various aspects of information, such as importance of regular physical activity as well as individualized exercise and weight loss plans if necessary.[41] It is also important to educate patients on the role of surgery only as a later-line approach and information about the disease, including pathogenesis, symptoms, and diagnostic methods.

Pain medications are also recommended by guidelines, with paracetamol and NSAIDs being the most frequently recommended agents for mild-to-moderate pain.[18,23–30,40] While oral NSAIDs have been shown to result in clinically meaningful improvement in both pain and function, concerns about safety, particularly relating to gastrointestinal and cardiovascular events raise important considerations in selecting the preparation and dose for individual patients. Oral NSAIDs are preferably restricted to short-term use at the smallest dose possible.[11,24,26,30] Topical NSAIDs are also recommended for pain relief in OA, with no serious gastrointestinal or renal adverse events observed in trials or in the general population.[19,20,23,25,27–30,42] Other pharmacological agents used for OA pain management include intra-articular hyaluronans and prescription-grade crystalline glucosamine sulfate or chondroitin for knee OA.[18,23–26,28] The use of intra-articular corticosteroids remains controversial. It was not universally recommended by all guidelines as current evidence remains inconclusive and due to the potential harm from repeated injections.[18,23–25,29,30,40] Knee braces, heel wedges, acupuncture, and glucosamine and chondroitin nutraceuticals are typically not recommended by guidelines due to a lack of evidence on their efficacy in pain relief.[11,26,27,29,40]

Despite strong evidence on the efficacy and safety of topical NSAIDs for OA pain management, market data show that the use of topical NSAIDs in Malaysia remains significantly lower than oral NSAIDs. Between 2017 and 2020, topical NSAIDs were reported to range between 12.9% and 14.4% of the total NSAIDs market in Malaysia.[43] In contrast, topical NSAIDs comprise 33.6%–36.4% of

TABLE 1 Panel statements on the use of topical NSAIDs to manage OA pain.

Statement 1: OA is a substantial health problem with prevalence expected to continuously rise placing a significant burden on national economic and healthcare systems.
Statement 2: Use of topical NSAIDs remains low in Malaysia compared with oral NSAIDs despite strong evidence on efficacy and recommendations by international guidelines.
Statement 3: Topical NSAIDs are available in a variety of preparations and formulations with distinct modes of delivery that are suitable for the treatment of mild-to-moderate OA pain.
Statement 4: Topical NSAIDs at recommended dosage have comparable efficacy with oral NSAIDs for mild-to-moderate osteoarthritic pain relief.
Statement 5: Topical NSAIDs can provide effective relief for some patients with OA affecting more superficial sites of pain.
Statement 6: Topical NSAIDs have the advantage of local, enhanced drug delivery to affected tissues with reduced systemic absorption.
Statement 7: Patient education is important to encourage the wider use of topical NSAIDs for mild-to-moderate OA pain.
Statement 8: Topical NSAIDs help to reduce polypharmacy, especially among older patients with OA and with multiple comorbidities.

Abbreviations: NSAID, nonsteroidal anti-inflammatory drugs; OA, osteoarthritis.

the USA NSAID market and 63.4%–67.9% of the Japan NSAID market during the same period.[43] Use of topical NSAIDs was also low at an average of 9.9% of total NSAID market in Thailand between 2017 and 2020.[43] These data clearly indicate that the use of topical NSAIDs is under-recognized and underutilized in Malaysia and neighboring Thailand despite evidence showing it to be clinically effective, safe, and cost-efficient.

Panel recommendation 2: Awareness on the benefits of topical NSAIDs must be improved among healthcare professionals and patients to promote utilization of topical NSAIDs for mild-to-moderate OA pain.

Grade of recommendation: A

Statement 3: Topical NSAIDs are available in a variety of preparations and formulations with distinct modes of delivery that are suitable for the treatment of mild-to-moderate OA pain.

Topical NSAID formulations available worldwide include salicylates (acetylsalicylic acid), propionic acid derivatives (ibuprofen, suprofen, ketoprofen, flurbiprofen, and esflurbiprofen), acetic acid derivatives (diclofenac, indomethacin, and ketorolac), enolic acid derivatives (piroxicam), anthranilic acid derivatives (mefenamic acid and meclofenamic acid), and selective cyclooxygenase-2 (COX-2) inhibitors (celecoxib, etoricoxib, and valdecoxib). The therapeutic effect of topical NSAIDs depends on the drug's ability to penetrate and permeate the skin and subsequently inhibit COX isoform responsible for pain and inflammation.[44] Different active ingredients have different degrees of skin penetration.

Topical NSAIDs are also available in a wide variety of formulations, including gel, foam, cream, ointment, spray, and patch/plaster.[44] Formulation is also another crucial factor for good skin penetration. A balance between lipid and aqueous solubility is needed to optimize penetration, and use of prodrug esters has been suggested as a way of enhancing permeability.[45] Studies have shown that creams are generally less effective than gels or sprays, but newer formulations such as microemulsions may have greater potential.[46]

A systematic review found that the diclofenac patch exhibited the largest effect on pain, above that of diclofenac gel and solutions.[42] The authors attributed this potentially to the constant and continuous delivery of the active ingredient to the affected area via an occlusive bandage and slow release of the drug when compared with gels and solutions.[42] It could also be due to the higher contextual effects of patches than creams or gels. In another systematic review, gel formulations of diclofenac, ibuprofen, and ketoprofen as well as some diclofenac patches were shown to provide the best effects.[45]

Panel recommendation 3: Carefully consider the effectiveness of different preparations and formulations of topical NSAIDs when selecting suitable therapeutic agents for individual patients.

Grade of recommendation: A

Statement 4: Topical NSAIDs at recommended dosage have comparable efficacy with oral NSAIDs for mild-to-moderate osteoarthritic pain relief.

Multiple RCTs and meta-analyses have provided robust evidence on the efficacy of topical NSAIDs.[42,45,47,48] These studies have demonstrated that topical NSAIDs provide at least equivalent analgesia, improvement in physical function, and reduction of stiffness compared with oral NSAIDs in OA.

Most data available on the effectiveness of topical NSAIDs in OA are on topical diclofenac and ketoprofen. A Cochrane systematic review in 2012 found no difference in efficacy between topical and oral NSAIDs for reducing pain due to chronic musculoskeletal conditions.[49] Subsequently, a 2016 Cochrane systematic review including five studies (877 participants) comparing topical NSAIDs (diclofenac, ketoprofen, piroxicam) with oral NSAIDs (celecoxib, diclofenac, ibuprofen) in adults mainly with knee OA reported that 55% and 54% of patients achieved meaningful pain relief (pain reduction by 50%) with a topical NSAID and oral NSAID, respectively.[45] According to the same review, 60% of patients reported pain reduction by 50% following topical application of diclofenac or ketoprofen.[45]

Another systematic review reported the effectiveness of diclofenac (5995 participants) and ketoprofen (2573 participants). In patients with knee or hand OA, the numbers needed to treat (NNT) for ≥50% reduction of pain intensity at 6–12 weeks after treatment initiation are 9.5 for any topical formulation of diclofenac and 6.9 for ketoprofen gel.[50] While the NNT is relatively large, it is still promising as patients who do derive benefits from a topical NSAID may not need to consider the use of other interventions with a worse adverse effect profile.[21] Topical NSAIDs are also expected to be similarly effective for other OA conditions.[21]

A recent systematic review comparing the effects of five major drug categories in the treatment of OA pain found that topical NSAIDs produced greater relative changes in pain than oral NSAIDs.[51] The authors concluded that considering topical NSAIDs have a lower serious adverse event rate compared to oral NSAIDs, it may be prudent to use topical formulations before starting oral medications for OA pain.

In another review of analgesics for the management of knee or finger OA, seven out of the eight identified studies showed no statistically significant differences in efficacy between topical NSAIDs (diclofenac, ibuprofen, ketoprofen, and piroxicam) and oral NSAIDs (celecoxib, diclofenac, and ibuprofen).[52] Additionally, an RCT and patient preference study reported that at 12 months, the clinical outcomes were equivalent between patients given initial advice to use topical ibuprofen and those given advice to use oral ibuprofen for chronic knee pain relief.[53]

An analysis of six studies involving more than 3000 patients with various acute and chronic musculoskeletal injuries, including OA showed that results with topical and oral NSAIDs were statistically superior to those with placebo for treatment of both acute and chronic injury.[54] All head-to-head comparisons between topical and oral NSAIDs showed comparable efficacy between the two for treatment of acute and chronic injuries.[55] Separately, three RCTs have directly compared topical diclofenac with either oral diclofenac or ibuprofen.[54,56,57] All three trials found the topical agent to provide

at least equivalent relief of OA pain and other symptoms as the oral agents.

Panel recommendation 4: Topical NSAIDs should be prioritized over oral NSAIDs for mild-to-moderate OA pain, given robust evidence on the comparable efficacy.

Grade of recommendation: A

Statement 5: Topical NSAIDs can provide effective relief for some patients with OA affecting more superficial sites of pain.

Topical NSAIDs are formulated for direct application to the site of pain with the aim of producing a local pain-relieving effect while avoiding the body-wide distribution of the drug at physiologically active levels.[44,58] These agents act precisely where they are needed without first having to be absorbed via the stomach and then transported in the blood.[44,58] The sites of action for topical agents are the soft tissues and peripheral nerves underlying the site of application.[44,58] They likely provide relief by reducing ectopic discharges from superficial somatic nerves.[44]

The topical method of application, therefore, act most effectively on more superficial sites of pain such as in OA joints in the knees, finger and hand, ankle and shoulder.[45] These are joints that are close to the surface of the skin. They would not, for example, be indicated for the treatment of deeper seated joints, such as hips or spine or for deep visceral pain or headaches.[45] Topical NSAIDs are also preferred for people with only a few painful joints to prevent the risk of exceeding the recommended dosage when applied at too many sites.

Panel recommendation 5: Topical NSAIDs should be used for mild-to-moderate OA pain affecting superficial sites.

Grade of recommendation: A

Statement 6: Topical NSAIDs has the advantage of local, enhanced drug delivery to affected tissues with reduced systemic absorption.

Topical therapies mainly act by reaching high concentrations in the structures of joints, with only a small amount entering the systemic circulation. Plasma levels after topical administration have been reported to range between 0.2% and 8% of those achieved after oral administration.[44] While having only a small amount of the drug in the systemic circulation is a desirable trait to minimize any side effects in the circulatory and other organ systems, it is equally important to have sufficient concentrations of the active ingredient reaching the joint to exert its anti-inflammatory effect. Topical NSAIDs need to be able to penetrate the skin and permeate to the target areas in sufficient quantities to exert a therapeutic effect. The measurement of drug concentrations at the site of action is postulated to be an indicator of their likely efficacy.[59]

The pharmacological action of topical drugs relies on penetration through the stratum corneum and permeation into the lower layers of the skin.[44] The stratum corneum functions to protect the more delicate structures beneath it and therefore can be very difficult to penetrate passively. To overcome this, topically applied drugs may have a depot effect, such that they accumulate for a prolonged time in the stratum corneum, epidermis, dermis, and subcutaneous fatty tissue to form a reservoir that supplies a sustained release of the drug into surrounding tissues.[59]

Several factors affect the penetration of the drug through the stratum corneum and permeation to the underlying tissues. An ideal topical drug would have a small molecular size, have both lipophilic and hydrophilic properties, be acidic, and have good solubility of the vehicle used.[59] Additionally, the site and method of application and protein concentrations in the site of pain also affect the optimal penetration of a topical drug. Patch and plaster formulations provide additional benefit to traditional topical gels and creams as they can offer continuous and increased absorption.[44,59] Penetration of drugs may also be significantly improved through the use of ultrasound and iontophoresis.[60]

Generally, the concentration of NSAIDs after topical administration in the joint cartilage and in the meniscus is 4–7 times higher compared to that after oral administration of NSAID.[61] A systematic review assessing topical diclofenac in OA reported that topical diclofenac penetrated through the skin and permeated to the target tissues in appreciable amounts, with different concentrations within the knee.[59] Concentration was generally higher in synovial tissue than in synovial fluid. There is, however, limited data on the concentrations of diclofenac in the joint to draw any conclusions. Nevertheless, it is known that topical diclofenac is effective with a lower rate of systemic adverse events observed compared with oral diclofenac.

Panel recommendation 6: Topical NSAIDs are preferred over oral NSAIDs due to fewer systemic adverse events while providing adequate local drug concentration at the target tissue for pain relief.

Grade of recommendation: A

Statement 7: Patient education is important to encourage wider use of topical NSAIDs for mild-to-moderate OA pain.

Decision-making on the choice of treatment in managing OA should take on a collaborative approach between healthcare professional and patient, taking into account both parties' beliefs about clinical benefit, adverse effects, preferences, and costs. Understanding how patients' beliefs determine their preferences for treatment might improve the quality of this shared decision-making process and treatment success. Studies have found that factors influencing treatment choices by patients with arthritis include relief of symptoms, the occurrence of adverse effects, and the availability of alternative treatments.[62–64]

To further expand on these findings, a study was done to examine the factors influencing the study participants in making their choice of either using topical or oral ibuprofen for their knee pain.[65] The investigators found that patients with transient pain considered their pain less degenerative and preferred topical preparations. Topical analgesics were also considered to have a localized rather than a generalized effect. Patients had clear beliefs that topical preparations would not affect the rest of the body and that it would take effect more quickly. They also assumed that topical preparations have a lower dose of the active ingredient and therefore less toxic.

Patients who believed that their treatment was benefitting them were willing to tolerate some mild adverse effects, such as a rash, fatigue, change in bowel habits, and occasional upset stomach.[65] Topical preparations were viewed as safe because they did not enter

the circulatory system in the same way oral medications do. Patients also wanted a medication regimen that was practical for daily use and lifestyle. Others considered oral medications as time-consuming and messy. Those who chose topical preparations also considered the amount of other medication or tablets that they are already taking. These findings were also seen in another similar study among older people where it was shown that patient preference for medication type was influenced by previous experience of medication, other illness, pain elsewhere, anecdotes, convenience, severity of pain, and perceived degree of joint degeneration.[66] Importantly, lack of understanding about knee pain and the action of medication led to increased tolerance of symptoms.[66]

In another Japanese study evaluating patients' desired characteristics of NSAID topical plasters, analgesic efficacy, including analgesic strength, length of action, and early onset of action, followed by avoiding skin irritation and low medication cost were the characteristics most frequently reported as desirable by patients.[67]

Studies have found that increasing patients' knowledge through education about the causes of knee pain, treatment mode of action, and adverse effects improves both adherence and informed choice.[68,69] It is therefore important for healthcare professionals to engage patients in a shared decision-making process to encourage the use of topical NSAIDs among suitable patients and to promote treatment adherence. Equally important is to correct any misunderstanding about disease pathogenesis and medication mechanism of action so that major adverse effects are alleviated.

Panel recommendation 7: Healthcare professionals should discuss with patients about efficacy, availability, and applicability of topical NSAIDs to encourage them to choose the treatment modality.

Grade of recommendation: A

Statement 8: Topical NSAIDs help to reduce polypharmacy, especially among older patients with OA and with multiple comorbidities.

The option of topical NSAIDs is especially welcomed for OA as it is a condition predominantly affecting the older population, who is at higher risk of experiencing the side effects of prolonged NSAID use either owing to multiple comorbidities or polypharmacy augmenting that effect. The typical OA patient is an elderly person with multiple medical problems and taking several medication who will require long-term treatment. This population is especially vulnerable to drug toxicity due to factors such as poor treatment adherence, nutritional insufficiency, altered pharmacokinetics, end-organ responsiveness, and the increased likelihood for drug–drug interactions arising from polypharmacy for various comorbidities.[70] The reduced side effect potential with topical NSAIDs is indeed a favorable characteristic, particularly for this population.

Commonly reported toxicities attributed to oral NSAID use include morbidity and mortality from gastrointestinal events.[71,72] Other significant side-effects of oral NSAIDs include renal insufficiency, hypertension, leg edema, and exacerbation of heart failure and an increased risk of cardiovascular events.[72]

The use of topical NSAIDs may have a treatment-sparing effect on the use of oral NSAIDs in moderate-to-severe rheumatic diseases. A real-world study including more than 1200 patients with OA showed that an average 40% reduction in the required dose of oral NSAIDs was achieved with the addition of topical etofenamate.[20,73] This lead to a 46% improvement in pain and 34% improvement in function while the lowering of the oral NSAID dose led to a significant reduction in the adverse effects reported, particularly a >20% reduction in adverse effects of the gastrointestinal tract.[20,73]

As the presence of other illness or pain as well as the amount of other medication or tablets used are important considerations that patients take into account when choosing their preferred medication, topical NSAIDs provide an appropriate and acceptable option for patients whom polypharmacy and multiple comorbidities are concerns.

Panel recommendation 8: Healthcare professionals should educate patients on the benefit of topical NSAIDs in potentially reducing polypharmacy.

Grade of recommendation: B

4 | CONCLUSION

This publication presents evidence-based consensus recommendations on the use of topical NSAIDs for the management of mild-to-moderate OA pain. In agreement with major OA treatment guidelines, the panel supports the use of topical NSAIDs over oral NSAIDs as first-line treatment of mild-to-moderate OA pain. This recommendation is mainly driven by the findings of numerous trials that topical NSAIDs have comparable efficacy but a lower risk of systemic side effects to oral NSAIDs. Patient education is important in the shared decision-making process between the healthcare professional and patient in choosing the most appropriate preparation and formulation. This in turn improves treatment adherence thus reducing pain, leading to an improvement in patients' quality of life.

AUTHOR CONTRIBUTIONS

All authors contributed to the discussion contained in the article, and have read and approved the final submitted manuscript.

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CONFLICT OF INTEREST STATEMENT

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