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Improving Symptoms in Knee Osteoarthritis: Can We Get There From Here?

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Chronic knee pain, which is predominantly due to osteoarthritis, is associated with significant disability and decreased quality of life. With the aging of the U.S. population, the medical community has braced itself for a tsunami of elderly patients with chronic knee pain—a reasonable response to the projection that almost half of U.S. adults will develop osteoarthritis in at least 1 knee by age 85 years (1). However, the fact that 50% of all persons with symptomatic knee osteoarthritis are younger than 65 years is less appreciated (2). These patients will need effective pain therapy for decades. Because osteoarthritis currently has no cure, these demographic characteristics guarantee that a large and diverse cohort of patients will be seeking treatment for chronic knee pain well into the foreseeable future. Therefore, there is a clear and pressing need to identify effective, inexpensive, and low-risk strategies to improve pain and decrease disability in these patients.

Although a plethora of national and international osteoarthritis guidelines agree on the importance of nonpharmacologic therapy for knee osteoarthritis, the implementation of such therapy in the community is poor (3). There are many barriers to uptake of nonpharmacologic therapy, including lack of knowledge of potential benefits, poor self-efficacy, lack of resources, and a misplaced belief in the superiority of pills and injections (4). Although the most commonly used medical therapies for knee osteoarthritis, such as acetaminophen, nonsteroidal anti-inflammatory drugs, and cyclooxygenase-2 inhibitors, can be effective, they also have nontrivial adverse effects, such as gastrointestinal bleeding, renal dysfunction, and increased cardiovascular events. This is particularly true both for elderly adults and for younger patients who may have years of cumulative exposure. Injectable therapies, such as hyaluronan and platelet-rich plasma, have also become popular osteoarthritis treatments. However, these are expensive, require administration by a specialist, and have less robust data supporting their efficacy. Narcotics are often used as a last resort, but these are particularly poor long-term solutions given the risks for habituation. In fact, patients often become disenchanted with medical treatment for knee osteoarthritis pain, as evidenced by the fact that one third of patients also use complementary therapies (5). Although some complementary therapies, such as acupuncture, may improve knee pain and disability, most lack convincing data to support their use.

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Rather than resorting to unproven therapies, patients with knee osteoarthritis would be better served by having access to effective nonpharmacologic therapies. Bennell and colleagues (6) present the results from a randomized, controlled trial evaluating whether delivering nonpharmacologic therapy via the Internet can improve pain and decrease disability in persons with knee pain. Participants in both the intervention and control groups received online educational material, and those in the intervention group received 2 additional treatments: a set of online pain-coping skills training modules, and a series of online videoconferencing sessions with a physiotherapist, who provided a personally tailored exercise program. The intervention group was also provided with exercise equipment, such as resistance bands, ankle weights, and a pedometer. At the end of the study, both groups had improvements in pain and function, but these were significant only in the intervention group. Uptake of and adherence to the coping skills and exercise sessions were excellent, and participants were extremely satisfied.

These results are encouraging and show that “tele-medicine” is clearly ready for prime time. In 2016, 87% of Americans older than 50 years and 64% of those older than 65 years used the Internet (7). An Internet-based intervention circumvents multiple issues related to access to care, making this an inexpensive and easily scalable option for people living in remote areas or any location with an inadequate supply of health care providers. The intervention was acceptable to patients, with most completing their assigned programs.

Several limitations should be considered. Patients were not blinded to the intervention, and the online education used as a placebo was not an equivalent attention control; therefore, it was not possible to determine the proportion of improvement that was definitely attributable to the intervention itself. The patients had knee pain but not radiographically proven knee osteoarthritis, so the study could not evaluate whether the efficacy of the intervention varied according to radiographic severity. Patients were eligible to participate only if they had received no recent treatment for knee pain, did not have worse pain at another site, or did not have pain that limited exercise. Up to 80% of patients with knee osteoarthritis have other “troublesome joints” (8), and having multisite musculoskeletal pain is a poor prognostic factor for improvement (9). The decision to restrict participants to those with limited, untreated knee pain makes this sample less representative of most patients with knee osteoarthritis and thus the results potentially less generalizable. However, evaluating the “low-hanging fruit” (patients who are more likely to respond) is an entirely reasonable approach to establish proof of concept before embarking on wider dissemination of this novel intervention. Finally, other groups using exercise and cognitive behavioral therapy to treat chronic pain have found potentially differential effectiveness according to race/ethnicity (10). Given that at least 3.4 million racial/ethnic minorities have symptomatic knee osteoarthritis in the United States, it will be important to test these types of multifaceted interventions in various populations, refining protocols as needed to ensure optimal efficacy in different cultural environments (2).

Regardless, this study is an important step forward in validating a pragmatic strategy to help patients with chronic knee pain access effective care.

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