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Viewpoint

Value-Based Care for Nonoperative Management of Hip and Knee Osteoarthritis: Current Landscape Not Ripe for Implementation

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As the most expensive health-care system in the world, a central focus of health-care reform in the United States has been on delivering value-based care. Within orthopedics, joint arthroplasty has been the primary subject of this policy shift. A number of bundled or alternative payment models (APMs) have been implemented starting with the 2009 Acute Care Episode Demonstration and leading to the 2018 Bundled Payments for Care Improvement Advanced. While APMs have been shown to decrease the length of stay and nonhome discharge after total joint arthroplasty (TJA), other studies have shown similar improvements in patient-reported outcomes and rates of 90-day unplanned readmissions, emergency department visits, and mortality relative to nonbundled procedures [1–4]. Furthermore, while there is evidence demonstrating a positive impact of APMs on cost TJA containment [5–7], this outcome has not been universal with some institutions reporting significant losses after the implementation of Bundled Payments for Care Improvement Advanced [8]. One of the challenges of APMs is that target costs are often based on historical references. Failure to achieve those often "low" target values can result in a penalty, causing some institutions to withdraw from APMs [2].

The Centers for Medicare and Medicaid Services is currently considering the expansion of payment reform to the nonoperative management of osteoarthritis (OA). It is estimated that over 32.5 million adults in the United States are affected by hip and knee OA with mean outpatient costs estimated at $7840 per person [9,10]. Apart from curbing the costs of care for one of the most expensive chronic conditions, the proposed longitudinal OA bundle would also complement our traditional problem-focused approach by attending to more holistic aspects including lifestyle modifications, patient education, and counseling on pain-coping skills [11]. These interventions could modulate the course of OA burden and optimize outcomes for patients who eventually undergo surgery. Bundled payment programs that focus only on surgical procedures and the immediate postoperative period are inherently limited because they do not address factors that could preoperatively improve patients' outcomes before the disease has progressed to the point of needing surgery [11].

Nonsurgical management of OA is currently reimbursed on a fee-for-service basis, which is dependent on the quantity rather than quality of care. Value-based payment programs, on the contrary, may have the potential to promote evidence-based cost-effective care, increase care coordination among different medical specialists, and optimize outcomes for patients who eventually undergo TJA. One example is the Australian Osteoarthritis Chronic Care Program, which is funded by the Ministry of Health. The Australian Osteoarthritis Chronic Care Program provides a

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comprehensive nonoperative care including exercise, weight loss, pharmacologic management, and psychological management for 1 year and is coordinated by dedicated musculoskeletal specialists. This resulted in an 11% decrease in TKA utilization and 4% decrease in THA over 1 year because of successful nonoperative management [11]. In the United States, a pilot program is underway at the University of Texas in Austin. The program consists of an integrated group of orthopedic surgeons, advanced practitioner nurses, nutritionists, and behavioral health-trained social workers. After enrollment in the program, 65% of patients achieved a minimum clinically important difference in their hip and knee disability and osteoarthritis outcome scores (HOOS, JR and KOOS, JR) at their first follow-up visit. If patients progressed to needing surgery, a decrease in surgical length of stay and an increased rate of discharge to home were also observed [11]. A national value-based care model for nonoperative management of OA would require a similar arrangement to be effective. Particularly, APMs need to be based on provision of evidence-based care and timely referral for joint arthroplasty when conservative management has failed. Otherwise, primary care physicians and other nonorthopaedic care providers participating in bundled care would be incentivized to perform non–evidenced-based treatments (viscosupplement injections) and not refer patient for surgery.

As previously stated, a fundamental component of value-based care is the provision of evidence-based treatment. Specific to hip and knee OA, the American Academy of Orthopedic Surgeons (AAOS) has published clinical practice guidelines (CPGs) for nonoperative management of these conditions [12,13]. For hip OA, the AAOS CPGs provide strong recommendations for use of physical therapy, intra-articular corticosteroids, and nonsteroid anti-inflammatory drugs (NSAIDs). In contrast, interventions such as intra-articular hyaluronic acid and glucosamine sulfate are not recommended. Regarding knee OA, the AAOS CPGs provide strong recommendations for use of NSAIDs and physical rehabilitation. Moderate recommendations are provided for weight loss, lateral wedge insoles, and needle lavage. In contrast, interventions such as glucosamine, chondroitin sulfate, acupuncture, and viscosupplement injections are not recommended. Electrotherapeutic modalities, manual therapy, knee brace, acetaminophen, opioids, pain patches, biologic injections, and intra-articular steroid injections have inconclusive recommendations for their use.

Outside of orthopedic surgery, we are aware of only one other major medical sub-specialty that has published similar CPGs for hip and knee OA, namely the American College of Rheumatology [14]. Overall, the AAOS and American College of Rheumatology largely agree on treatment recommendations for hip and knee OA. Both recommend the use of NSAIDs, physical therapy, weight loss, and intra-articular corticosteroids. The primary points of difference lie in the strength of these recommendations and whether they apply to hip or knee OA. Still, despite the existence of AAOS CPGs, adherence in our field has been poor [15]. For example, even with a strong recommendation against hyaluronic acid injection, this therapy remains commonly used by orthopedic surgeons [12], with a mean cost of $1128 for one injection series [16]. The underlying reasons for noncompliance are unclear but are hypothesized to include either lack of CPGs from governing medical societies or lack of awareness of those CPGs. Apart from orthopedics and rheumatology, patients with OA are often seen by a variety of other medical specialties, most commonly family medicine, geriatrics, internal medicine, and physical therapy. Remarkably, the American Academy of Family Physicians, the American Geriatrics Society, the American College of Physicians, and the American Physical Therapy Association do not currently have published treatment recommendations for hip and knee OA. As members of those medical societies are often the gatekeepers for patients with OA, it is essential that they are aware of the optimal treatment modalities to ensure consistent, evidence-based management. If patients visit multiple care providers from different specialties and receive inconsistent recommendations, this can foster an environment of noncompliance and lead to a negative and costly overall patient experience. Noncompliance can lead to patients seeking care with multiple care providers, virtually negating any benefit that bundled payments may provide and further increasing the costs of care.

An additional benefit for multidisciplinary standardization of nonoperative care is minimizing health-care disparities. Several studies have shown disproportionately low TJA utilization rates among racial and ethnic minorities despite similar or even higher OA burden [17–19]. Differences in preoperative OA management and access to specialized care are potential contributing factors for such disparities. Communities with higher concentrations of Black residents, for example, tend to have fewer surgeons per capita and fewer external ties for referrals to specialists [20]. Studies across several medical and surgical specialties have shown that Black patients do not receive timely referrals to specialists [21–25]. In addition, minority patients undergoing TJA have higher overall comorbidity burden including obesity and diabetes mellitus obesity [26] and thus may experience delays in receiving surgery. In addition to promoting high-quality care before progressing to the point of needing surgery, value-based care should also include appropriation for preoperative optimization and coordination of care. Otherwise, minorities and high-risk patients may be excluded from value-based payment programs, further perpetuating health disparities. Minority and medically complex patients may require more visits to care coordination and thus could cost more in a nonoperative bundle. Therefore, risk-adjusted bundles are necessary to prevent such patients from being denied care for fear that they would be “bundle busters” due to higher medical complexity. Anemia, malnutrition, opioid use, and tobacco smoking are a few examples of the modifiable risk factors that can increase the rate of complications after surgery [27,28]. Management of modifiable risks factors is a time-consuming process which requires multidisciplinary care, and bundling costs could help streamline this process to decrease the rate of surgical site infections, length of stay, readmission rates, and overall costs of care. Improving patients’ overall health may also promote increased hospital participation in current TJA bundled payment programs.

Payment reforms have been proven to be effective at reducing costs of surgical care without compromising outcomes. Our next challenge as a community is to take these principles and apply them to nonoperative management of common chronic conditions, such as OA. Increasing value of care is a worthwhile goal, but it cannot be accomplished until our evidence-based CPGs are familiar to and followed by all health-care providers who would be providing nonoperative management for our patients. This has important implications beyond value, and it extends to providing equitable care to all patients. Regardless of where patients enter the health-care system, receiving consistent and evidence-based care is critical.

Conflicts of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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