

Preface: Joint Preservation Options in Patients with Knee Osteoarthritis: Bridging the Chasm

Osteoarthritis (OA) affects more than 27 million Americans (12.1%) and is characterized by a progressive and irreversible loss of articular cartilage.¹ This disease inflicts a growing burden of morbidity, health care costs, and lost productivity on affected patients and society. Many treatment options are available for knee OA patients. Initial management of knee OA symptoms utilizes conservative therapies and arthroscopic surgical approaches with high failure rates and limited long-term efficacy. After failing to delay or prevent disease progression, arthroplasty and high tibial osteotomy, which are generally reserved for patients with more severe pain or disability, are often necessary as the second line of treatment. The risk of future revision surgery is a major concern for patients, especially for the young knee OA patient who will likely outlive a prosthesis.² Many such patients fall into what has been called the “treatment gap.” This gap exists for the younger patient with symptomatic knee OA who is unresponsive to conservative care yet refuses to undergo or is not an appropriate candidate for more invasive surgical procedures.³ It was estimated that the typical knee OA treatment gap can extend 20 years.³ Current medical treatments for knee osteoarthritis are not always suitable for some people, and as a result, these people often live with severe pain and have significant difficulty conducting their normal day-to-day activities.⁴ Innovation in the management of osteoarthritis, especially for those who find themselves in the treatment gap, is greatly needed. Ideally, a safe, effective, joint-preserving, and cost-effective treatment option that could delay or obviate the need for surgical intervention for this group of knee OA patient is needed to bridge the chasm of treatment options.

Identifying current evidence on which to build future innovation is critical. With more than 11 million web pages associated with the term “osteoarthritis” in Google (www.google.com), information is expansive and often unfiltered. Clinicians must, therefore, be able to identify the signal among the noise among OA therapies using the paradigm of evidence-based medicine (EBM). Over the last several years, the concepts and ideas attributed to and labeled collectively as EBM have become a part of daily clinical lives, and clinicians increasingly hear about evidence-based guidelines, evidence-based care paths, and evidence-based questions and solutions. The controversy has shifted from whether to implement the new concepts to how to do so sensibly and efficiently, while avoiding potential problems associated with a number of misconceptions about what EBM is and what it is not. With the wide spread of EBM-related concepts and the ever-increasing amount of available information, surgeons have no choice but to become familiar with EBM principles and methodologies to understand

and use today's literature. A common misunderstanding and ultimate misapplication of EBM assumes that EBM equals randomised trial evidence. Some critics argue that EBM is not a tool for providing optimal patient care, but merely a cost-containment tool.⁵ All of these statements represent a fundamental mischaracterization of EBM. EBM involves informed and effective use of all types of evidence (from meta-analysis of randomised trials to individual case series and case reports). The most sophisticated practice of EBM involves integration of our clinical expertise and judgment with patients' and societal values as well as with the best available research evidence.

Using the tools of EBM, this supplement explores therapies in the management of knee osteoarthritis and the distinct therapeutic need for alternative knee OA treatments to fill the gap between ineffective conservative care and joint-modifying surgical procedures. We uncover treatment gaps, examine evidence for known therapies, and challenge readers to think "outside the box" regarding newer treatment alternatives. We propose studies to help bridge gaps by understanding OA burden and prognostic factors (i.e., the iKare study), and we explore the treatment gap using novel qualitative research methodologies. This supplement presents economic analyses and guides for future studies; it provides insight into design considerations for global research on novel implants. While some suggest that OA therapies can only be evaluated with rigid adherence to randomised trials, a more pragmatic approach is to use all types of evidence effectively and appropriately to provide more accurate information. This supplement demonstrates the existence of the chasm and uses EBM to explore possible ways to bridge the chasm.

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