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Abstract

Key Findings: An educational video on the risks and benefits of total knee replacement increased the rate of surgery among black patients, in a clinical trial of an intervention that could reduce known racial disparities in treatment of osteoarthritis.

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Research BRIEF

Research to Improve the Nation's Health System

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EFFECT OF A DECISION AID ON ACCESS TO TOTAL KNEE REPLACEMENT FOR BLACK PATIENTS WITH OSTEOARTHRITIS OF THE KNEE: A RANDOMIZED CLINICAL TRIAL

Said A. Ibrahim, Marissa Blum, Gwo-Chin Lee, Pekka Mooar, Elina Medvedeva, Aliya Collier, and Diane Richardson
JAMA Surgery, November 2016 [published online]

KEY FINDINGS

An educational video on the risks and benefits of total knee replacement increased the rate of surgery among black patients, in a clinical trial of an intervention that could reduce known racial disparities in treatment of osteoarthritis.

THE QUESTION

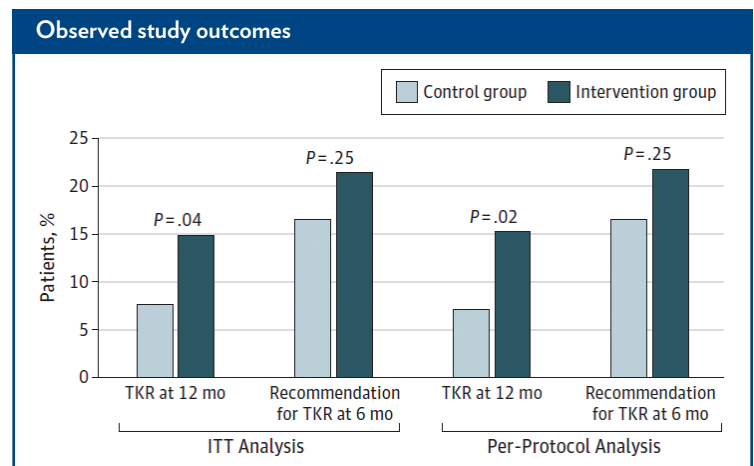
Osteoarthritis (OA) limits activity and the ability to work, and is among the leading causes of disability in the United States. Total knee replacement (TKR) is the most effective and cost-effective surgical option for moderate to severe OA of the knee, but black patients are significantly less likely than white patients to undergo the surgery.

Black candidates for joint replacement differ in their preferences for treatment, which are primarily shaped by different understandings of the risks and benefits. Previous research confirmed that an educational intervention increased black patients' knowledge and willingness to undergo surgery if recommended.

This study tested whether an educational video about OA treatment options actually improves the receipt of TKR and/or receiving a recommendation for surgery from an orthopedic surgeon. Did the decision aid improve access to TKR surgery for black patients who need it?

THE FINDINGS

Among 336 black patients randomized to either a 40-minute video (intervention) or a general pamphlet that did not discuss surgery (control), 14.8% of the video group underwent TKR within 12 months, compared to 7.7% of the pamphlet group. These changes represent a 70% increase in the TKR rate, even when including a number of patients in each group that did not actually view the video or receive the booklet



[in an intention-to-treat (ITT) analysis]. The effect is even greater when analyzing only the 304 patients who actually completed the protocol—in which the video increased the receipt of TKR by 86%. Rates of recommendation for surgery were higher in the intervention group, but the difference did not reach statistical significance.

The effect of the decision aid on TKR at 12 months was similar among subgroups of patients. However, the video tended to be more effective than the pamphlet for those who at baseline had expressed a willingness to undergo surgery compared with those unwilling, for women compared with men, and for patients aged 50 to 55 years compared with older patients.

FOR AN ELECTIVE TREATMENT SUCH AS TKR, PATIENT PREFERENCE FIGURES STRONGLY IN DRIVING DISPARITIES, A FACTOR THAT IS AMENABLE TO AN EDUCATIONAL INTERVENTION.

THE IMPLICATIONS

This study shows that educational decision aids may help to reduce racial disparities in access to surgical treatments that are sensitive to individual preference. It is the first randomized trial in the nation to show that an educational video increases access to knee replacement surgery for minority patients.

Racial disparities in rates of TKR are influenced by patient-level, physician-level, and system-level factors. For an elective treatment such as TKR, patient preference figures strongly in driving disparities, a factor that is amenable to an educational intervention. The National Quality Forum has cited shared decision making, which decision aids promote, as one of the health care reforms with the greatest potential to reduce disparities.

Other studies have found that the use of decision aids is associated with less use of elective invasive surgery such as joint replacement. This study differs in that it focused on black patients, who are traditionally skeptical about the use of joint replacement surgery. The authors note that baseline differences in preference, knowledge, or expectations affect the quality of communication between black patients and their doctors, and thus reduce black patients' likelihood of receiving a recommendation.

The study did not address the mechanism by which a decision aid leads to a higher rate of TKR. The patients were shown the educational video only once, a relatively brief intervention. It is possible that better access to decision aids over a longer period of time, as well as following patients for longer than 12 months, would result in a greater likelihood of having TKR surgery.

THE STUDY

In this randomized clinical trial, 336 participants were recruited from December 2010 until May 2014 at three medical centers in Philadelphia, PA. Patients were eligible if they self-identified as black, were at least 50 years old, and had chronic and frequent knee pain. At baseline,

participants were asked about their willingness to undergo TKR if their surgeon recommended it. The orthopedic surgeons were blinded to patient randomization.

Participants were randomized to the intervention group (to watch the 40-minute decision aid video) or to the control group (to receive an educational booklet that summarized how to live with knee OA but did not mention joint replacement). The video included discussion of treatment options for knee OA, including lifestyle changes, medications, injections, complementary therapy, and surgery, as well as information on the known efficacy of each treatment option.

The researchers used information from electronic medical records to analyze the receipt of TKR surgery within 12 months and/or a recommendation for TKR surgery from an orthopedic surgeon within six months. The study did not evaluate any nonsurgical treatments study recipients may have received.

Ibrahim SA, Blum M, Lee G, Mooar P, Medvedeva E, Collier A, Richardson D. [Effect of a Decision Aid on Access to Total Knee Replacement for Black Patients With Osteoarthritis of the Knee: A Randomized Clinical Trial](#) DOI: 10.1001/jamasurg.2016.4225. JAMA Surgery, published online November 23, 2016.

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