Trends in the Use of Knee Arthroscopy in Adults

Multiple clinical trials have shown that knee arthroscopy, compared with medical management, does not result in clinically significant benefits for patients with osteoarthritis, meniscal tears, and knee pain.1,2 It is unclear whether these trials have affected clinical practice. Reimbursement incentives favor and inpatient surgical procedures in the state. I selected 2000 to 2015. The all-payer data included 100% of ambulatory surgery, and surgeons' and patients' beliefs may not reflect trends in the use of knee arthroscopy in Florida from January 1, 2002, to December 31, 2015.

Methods | I evaluated trends in outpatient arthroscopic knee procedures among patients aged 18 years or older using the Florida State Ambulatory Surgery and State Inpatient Databases for 2000 to 2015. The all-payer data included 100% of ambulatory and inpatient surgical procedures in the state. I selected Florida because of the availability of data for that state and because it has a large, diverse population. Following a previous study,4 I measured receipt of arthroscopic knee surgery using Current Procedural Terminology codes and International Classification of Diseases, Ninth Revision and Tenth Revision procedure codes to identify arthroscopic knee operations.

In addition, I identified trends in the use of total knee arthroplasties to gauge the possible substitution between knee arthroplasty and arthroscopy. I separately examined the trends in arthroscopic knee procedures by age group.

I report the surgical rate per 100 000 population aged 18 years or older, standardized by age and sex to the 2002 Florida population, using the direct method. I evaluated the significance of trends using least squares regression with a time trend variable. The study was exempt from institutional review board review under federal regulation 45 CFR §46.101 because the data were previously collected and deidentified.

Results | In total, 868 482 arthroscopic knee procedures were performed in Florida between 2002 and 2015. Of the 868 482 procedures, 704 563 (81.1%) were meniscectomies. The knee arthroscopy rate declined over the study period, from 449 procedures per 100 000 population aged 18 years or older in 2002 to 345 in 2015 (change, 23%; P < .001) (Figure, A). The meniscectomy rate declined from 349 in 2002 to 291 in 2015 (change, 20%; P = .002), and the adjusted knee arthroplasty rate increased from 170 in 2002 to 244 in 2015 (change, 44%; P < .001).

The adjusted knee arthroscopy rate in the population aged 18 to 64 years declined from 447 in 2002 to 339 in 2015 (change, −24%; P < .001). The rate in the population aged 65 years or older declined from 454 in 2002 to 368 in 2015 (change, −19%; P = .01) (Figure, B).

Discussion | Knee arthroscopy rates in Florida declined by 23% between 2002 and 2015. The decline in arthroscopy rates was especially pronounced after 2008. The trial by Kirkley et al5 was published in 2008, which was the second major trial that failed to detect a difference between arthroscopy and medical management in the treatment of osteoarthritis of the knee.

LESS IS MORE

Trends in the Use of Knee Arthroscopy in Adults

Multiple clinical trials have shown that knee arthroscopy, compared with medical management, does not result in clinically significant benefits for patients with osteoarthritis, meniscal tears, and knee pain.1,2 It is unclear whether these trials have affected clinical practice. Reimbursement incentives favor surgery, and surgeons' and patients' beliefs may not reflect the evidence.3 In this article, I document the trends in the use of knee arthroscopy in Florida from January 1, 2002, to December 31, 2015.

Methods | I evaluated trends in outpatient arthroscopic knee procedures among patients aged 18 years or older using the Florida State Ambulatory Surgery and State Inpatient Databases for 2000 to 2015. The all-payer data included 100% of ambulatory and inpatient surgical procedures in the state. I selected 2000 to 2015. The all-payer data included 100% of ambulatory surgery, and surgeons' and patients' beliefs may not reflect trends in the use of knee arthroscopy in Florida from January 1, 2002, to December 31, 2015.

Methods | I evaluated trends in outpatient arthroscopic knee procedures among patients aged 18 years or older using the Florida State Ambulatory Surgery and State Inpatient Databases for 2000 to 2015. The all-payer data included 100% of ambulatory surgery, and surgeons’ and patients’ beliefs may not reflect trends in the use of knee arthroscopy in Florida from January 1, 2002, to December 31, 2015.

Methods | I evaluated trends in outpatient arthroscopic knee procedures among patients aged 18 years or older using the Florida State Ambulatory Surgery and State Inpatient Databases for 2000 to 2015. The all-payer data included 100% of ambulatory and inpatient surgical procedures in the state. I selected 2000 to 2015. The all-payer data included 100% of ambulatory surgery, and surgeons’ and patients’ beliefs may not reflect trends in the use of knee arthroscopy in Florida from January 1, 2002, to December 31, 2015.

Methods | I evaluated trends in outpatient arthroscopic knee procedures among patients aged 18 years or older using the Florida State Ambulatory Surgery and State Inpatient Databases for 2000 to 2015. The all-payer data included 100% of ambulatory and inpatient surgical procedures in the state. I selected 2000 to 2015. The all-payer data included 100% of ambulatory surgery, and surgeons’ and patients’ beliefs may not reflect trends in the use of knee arthroscopy in Florida from January 1, 2002, to December 31, 2015.
knee. The knee arthroplasty rate increased, but most of the increase preceded the decline in arthroscopy rates. Between 1999 and 2014, the prevalence of osteoarthritis in the US adult population more than doubled from 6.6% to 14.3%. Trends in per capita knee surgical procedures, which are not adjusted for the increase in the prevalence of osteoarthritis, likely underestimate the degree to which use of arthroscopic surgery as a treatment for knee pain has declined.

Some private insurers have started to require physicians to obtain authorization before an arthroscopic knee procedure. The fee-for-service Medicare program does not require prior authorization. Private insurers covered 72% of knee arthroscopies in patients younger than 65 years, and Medicare covered 83% of these procedures in patients aged 65 years or older. I could not observe the impact of prior authorization requirements directly, but trends in arthroscopy rates in these age groups were similar, indicating that the requirements may not be a major factor behind the decline in rates.

The results suggest that the accumulating evidence on the lack of benefit associated with knee arthroscopy, compared with medical management, has altered treatment decisions. Despite the lower use rates, knee arthroscopy is still a common procedure. There may be additional opportunities to reduce the use of knee arthroscopy without adversely affecting patient outcomes.

David H. Howard, PhD

Author Affiliation: Department of Health Policy and Management, Emory University, Atlanta, Georgia.

Accepted for Publication: June 16, 2018.

Corresponding Author: David H. Howard, PhD, Department of Health Policy and Management, Emory University, 1518 Clifton Rd NE, Atlanta, GA 30322 (david.howard@emory.edu).

Published Online: September 24, 2018. doi:10.1001/jamainternmed.2018.4175

Conflict of Interest Disclosures: None reported.


Association Between Antibiotic Prescribing for Respiratory Tract Infections and Patient Satisfaction in Direct-to-Consumer Telemedicine

Outpatient respiratory tract infections (RTIs) are mostly viral in nature and rarely warrant treatment with antibiotics, yet physicians frequently prescribe antibiotics for such infections. This decision to prescribe antibiotics for RTIs may be owing to physician assumptions that patient satisfaction will be lower if antibiotics are not prescribed. However, evidence supporting these assumptions is mixed. Direct-to-consumer telemedicine is an ideal setting in which to evaluate the association between antibiotic prescribing for RTIs and satisfaction ratings among patients. Respiratory tract infections are the most common reason that individuals seek medical care in this setting and every encounter concludes with a prompt for patients to rate their satisfaction. We assessed the association between antibiotic prescribing for RTIs and patient satisfaction ratings in the Online Care Group direct-to-consumer telemedicine platform.

Methods | This study includes encounters completed between January 1, 2013, and August 31, 2016. Patients with RTIs were defined as those with International Classification of Diseases, Ninth Revision, or International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, codes for sinusitis, pharyngitis, bronchitis, or other RTI. This study was approved by the Cleveland Clinic Institutional Review Board.

We categorized prescription outcome as no prescription, prescription of an antibiotic, or prescription of a nonantibiotic medication. Patients rated satisfaction with their physician on scales of 0 to 5 stars (where 5 is most satisfied and 0 is not satisfied at all), dichotomized as 5 stars vs fewer than 5 stars.

We assessed the correlation between individual physicians’ adjusted mean rates of antibiotic prescribing and their adjusted mean satisfaction scores. Models were adjusted for patient, physician, and encounter characteristics (Table). We then used mixed-effects logistic regression to evaluate whether satisfaction varied by prescription outcome, accounting for clustering by physician.

Results | Among 8437 encounters for RTIs with 85 physicians, 5580 (66.1%) resulted in prescription of an antibiotic, 1309 (15.5%) resulted in prescription of a nonantibiotic medication, and 1548 (18.3%) resulted in no prescription (Table). Most encounters (87%) garnered a 5 star satisfaction rating.

A total of 1123 of 1548 patients who received no prescription (72.5%) rated their satisfaction as 5 stars, compared with 5075 of 5580 (90.9%) of those who received a prescription for an antibiotic and 1126 of 1309 (86.0%) of those who received a prescription for a nonantibiotic medication. Compared with receiving no prescription, receipt of a prescription for an antibiotic was strongly associated with rating care 5 stars (adjusted odds ratio, 3.23; 95% CI, 2.67-3.91), as was receiving a prescription for a nonantibiotic medication (adjusted odds ratio, 2.21; 95% CI, 1.80-2.71). Physicians’ mean adjusted rates of antibiotic prescribing ranged from 19% to 90% (interquartile range, 56%-77%) and adjusted satisfaction ratings correlated with adjusted antibiotic prescribing rates (Pearson correlation, 0.41; P < .001) (Figure).

Discussion | In our study of patients with RTIs who accessed care through a direct-to-consumer telemedicine system, 66.1% received a prescription for an antibiotic, which was associated with higher patient satisfaction. No other patient or physician factor was as strongly associ-