Editorial

Persistence of Racial and Ethnic Differences in Utilization and Adverse Outcomes of Total Joint Replacement

Nonwhite individuals from minority groups are less likely than their white counterparts to undergo total knee replacement, and minority patients who undergo total knee replacement are more likely to have the procedure in a low-volume hospital and to die or experience a complication in the perioperative period. Twenty years after these findings were reported in population-based samples[1], Zhang et al. provide evidence in this issue of *The Journal of Bone & Joint Surgery* that these disparities in utilization persist and that minority patients remain more likely to have total knee replacement in low-volume centers, where outcomes are worse[2]. The authors also document that Native Americans are 6 times more likely than whites to die during total knee replacement admission.

The study takes advantage of U.S. state databases that include all payers, an advance over investigations limited to the Medicare population (virtually all of whom are ≥65 years old)[3]. This is particularly important, as recent studies have noted that the largest increase in the rate of total knee replacement is occurring among those younger than 65 years[4]. Still, as Zhang et al. noted thoughtfully, their study has limitations that we should appreciate. First, their denominator for utilization rates is not persons with advanced arthritis (the population eligible for total knee replacement) but rather the general population. This approach assumes that the prevalence of advanced arthritis (generally osteoarthritis) is similar across racial and ethnic groups. This assumption creates a conservative bias, as blacks and Hispanics have a higher prevalence of obesity, a key risk factor for osteoarthritis[5]. Recent studies using data with appropriate denominators have arrived at similar conclusions regarding lower utilization of total knee replacement in blacks[6].

The differences between white and nonwhite utilization patterns invite us to ask: What is the correct rate? Patients presenting with mild activity limitations are receiving total knee replacement, raising the question of whether it is appropriate to offer this costly intervention to retain rather than restore functional status[7]. On the other hand, patients who undergo total knee replacement late in the course of functional decline do not "catch up" to their counterparts who have higher levels of preoperative function, suggesting that outcomes would be optimized if patients had the procedure earlier[8,9]. What is the "right" rate? Current total knee replacement appropriateness criteria do not take into account patient preferences and are based on practice patterns that are 15 years old[7,10]. Thus, we cannot state whether total knee replacement is underutilized in minority populations or overutilized in whites. It is likely that, even as inappropriately high rates occur in some (generally white) populations, inappropriately low rates occur in other (predominantly minority) populations.

A range of studies have provided insight into reasons that underrepresented minorities are less likely to receive total joint replacement. Minority patients are offered total knee replacement by referring physicians less often than whites are, perhaps reflecting bias or the presence of conditions that make advanced arthritis a less pressing problem to focus on in brief office visits[11]. Blacks and Hispanics are less likely than whites to know much about total knee replacement, to know someone who has received a total knee replacement, to trust their physicians, or to believe that total knee replacement is effective[12]. They are more likely to believe that the procedure is risky and painful[13]. Indeed, given that minority patients are more likely to receive total knee replacement in low-volume centers, where outcomes are worse, the perception of greater risk may reflect the actual experience of total knee replacement outcomes in minority communities[14]. Blacks with advanced knee arthritis are also less likely to express strong preferences for undergoing total knee replacement[15]. We should be cautious not to accept these preferences at face value, as they may represent generations of internalized oppression and truncated horizons of opportunity[16].

The findings of Zhang et al. also underscore the prevalence of disparities for nonblack minority groups. Hispanics account for 17% of the U.S. population, necessitating a deeper understanding of their preferences for care[17]. In addition, Zhang et al. documented that Native Americans experience sixfold higher in-hospital mortality than whites, highlighting the need for investigation of access to and quality of care in this community as well.

In some cases, investigators have attempted to move beyond a description of disparities to interventions. An intervention that used a decision aid and motivational interviewing led to modest improvements in total knee replacement knowledge for black patients as well as greater openness to speaking with orthopaedic surgeons[18]. Further efforts using more potent interventions are clearly needed. In view of the observation that minority patients with advanced arthritis are less likely to trust their physicians[12], training of minority physicians to care for patients with advanced arthritis would likely make a difference and should be a priority manpower issue.

Efforts to bridge the gap in total knee replacement utilization will encounter increasingly stiff headwinds. Total joint replacement has provided a profitable service line for provider organizations. However, as more payers move to a prepaid model in which health systems receive lump sum payments for each covered life and use it to provide all care, elective procedures such as total knee replacement will quickly become cost centers and not profit centers. Presently, hospitals are incentivized to do more total knee replacements; before long, most hospitals will feel pressured to do fewer, as total knee replacement will compete with other potential uses of a fixed bucket of funds. Furthermore, hospitals and surgeons will increasingly see their incomes tied to patient outcomes in pay-for-performance programs. Given the generally worse outcomes experienced by blacks and other minority groups, the pay-for-performance pressure will favor cherry-picking of healthier (generally white) patients. Risk adjustment might diminish this problem, but the limited information on social determinants of outcomes available in administrative data makes residual confounding likely. On the other hand, care innovations will likely push patients to receive total knee replacement care from higher-volume hospitals, addressing an important source of outcome disparities.

More fundamentally, we must face the possibility that disparities in utilization and outcome persist stubbornly because they reflect fundamental economic and sociocultural challenges of living as a member of a minority group. Income inequality in the U.S. and other developed countries is widening to historic levels. The current election season in the U.S. and the refugee crisis in Europe highlight genuine differences of opinion across the globe about the level of access to fixed resources that established resident communities wish to offer to those newly arrived. We must prepare for the possibility that without creative, strong interventions to reverse the trend, disparities in utilization and outcomes of elective procedures may deepen. ■

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