

Racial Disparities in the Treatment of Benign Prostatic Hyperplasia

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Abstract

Purpose: Benign prostatic hyperplasia (BPH) affects the majority of men over the age of 50 years. Management of patients with symptomatic BPH includes surveillance, medication, and surgery. We examined ethnic differences in BPH treatment in a diverse population with similar healthcare access and socioeconomic status.

Materials and methods: We searched the California Medi-Cal database comprising over 7 million persons from 2000 to 2005 for patients who had been enrolled in Medicaid for at least one year before a new diagnosis of BPH. We collected information on age, race, presenting symptoms and management.

Results: Our study included 53,172 men at a mean age of 67 years with 35% white, 9.3% African-American, 18.1% Hispanic, 23% Asian, and 4.3% other. Medications were prescribed to only 45% of all patients, with 98.1% of treated patients receiving alpha blockers and 9.6% receiving 5 alpha-reductases inhibitors. After controlling for age at diagnosis, African-Americans were far less likely to be treated (28.6%) in the first year of diagnosis compared to patients of other races: whites (44%), Hispanics (43.5%) and Asians (53.5%) ($p < 0.05$). Surgery was performed in 6.1% of patients within one year of diagnosis. Compared with whites, both Asian and African-Americans were less likely to have surgical intervention (OR 0.63, and 0.83, respectively, $p < 0.05$) while Hispanics were more likely to be operated (OR 1.5, $p < 0.001$).

Conclusions: In a population of patients with supposed equal access to care, racial disparities exist in the treatment of BPH. This may reflect differences in cultures and expectations within the different ethnicities.

Keywords: Incontinence; Urologist; Urinary retention; Benign prostatic hyperplasia

Introduction

Benign prostatic hyperplasia (BPH) is a common disease of men over the age of 50 years. Patients with BPH present with lower urinary tract symptoms (LUTS) which include urinary hesitancy, frequency, nocturia, incontinence, weak stream, and abdominal straining. The initial diagnosis of BPH is based upon the history of LUTS or complications from bladder outlet obstruction including urinary tract infections, retention requiring catheterization, and bladder stones. When symptoms become bothersome or complications develop then treatment for BPH includes medications or surgery. The most widely used medications are alpha blockers and 5 alpha-reductases inhibitors. Medications are generally first-line therapy and are often prescribed by a primary care physician. Surgery requires evaluation by a urologist.

Prior studies have reported on ethnic trends in the treatment of BPH by physicians. The findings vary from having greater, similar, or less likelihood of having surgery when comparing black and white men [1-4]. This is related to differences in patient population, access to healthcare, and socioeconomic status. Data on other ethnicities are sparse despite their growing percentage in the American population.

We describe racial disparities in treatment of BPH in the California Medicaid program. This encompasses an ethnically diverse population of patients with comparable socioeconomics and healthcare access. We examined trends in medical and surgical management and hypothesized that ethnicity would be an independent factor.

Materials and Methods

Data collection

Medi-Cal is the largest of the state Medicaid programs in the US and provides care to over 7 million indigent and disabled persons every year. Males 40 years and older enrolled in Medi-Cal with an incident diagnosis of BPH and at least 12 months follow-up were studied to evaluate patterns of medical and surgical care for this condition.

Statistical analysis

All comparisons were adjusted for age at study entry. Logistical regression was used to calculate the OR and 95% CI.

Results

Among the 7 million men in the Medi-Cal database, a total of 53,172 men met the inclusion criteria for our study. The mean age was 67 with the majority either age 60 to less than 70 at 28.4% or age 70 to less than 80 at 31.5%. Out of the total study population, 35% were whites, 9.3% African-Americans, 18.1% Hispanics, 23% Asians, 4.3% other and 10.3% unknown as presented in (Table 1). The mean age at first diagnosis of BPH was 65.3 years in whites, 58.7 years in African-Americans, 67.2 years in Hispanics, and 71.7 years in Asians.

Within the study population of men diagnosed with BPH, only 16.2% were coded with an associated diagnosis of lower urinary tract symptoms (LUTS) with 10.2% describing obstructive LUTS and 7.4% describing irritative LUTS. The most commonly associated comorbidities were hypertension (69.5%), hyperlipidaemia (46.0%), cardiovascular disease (32.5%), and diabetes (29.4%). At the time of initial diagnosis of BPH, 3.7% of men presented with urinary retention.

Medications were prescribed to only 45% of all patients. Alpha blockers were given to 98.1% of treated patients, 5 alpha-reductases inhibitors to 9.6% while 7.7% received a combination of both

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| Race | Number | Percent of patients | Age (mean) years |
|----------|--------|---------------------|------------------|
| Missing | 5472 | 10.29 | |
| White | 18596 | 34.97 | 65.3 |
| Black | 4931 | 9.27 | 58.7 |
| Hispanic | 9636 | 18.12 | 67.2 |
| Asian | 12234 | 23.01 | 71.7* |
| Other | 2303 | 4.33 | |

Table 1: Distribution of patients with BPH by racial groups *p=0.05.

medications. Tamsulosin was the most commonly prescribed alpha blocker, accounting for 48% of men treated with an alpha blocker. Finasteride was the most commonly prescribed 5 alpha-reductases inhibitor, accounting for 86% of men on a 5 alpha-reductases inhibitor. After controlling for age at diagnosis, African-Americans were far less likely to be treated medically (28.6%) in the first year of diagnosis compared to patients of other races: whites (44%), Hispanics (43.5%) and Asian (53.5%) (p<0.05 after adjusting for age) as described in (Table 2). Although the choice of an alpha blocker was consistent among the races at approximately 98%, African-Americans were less likely to be given a 5 alpha-reductases inhibitor (5.6%) in the first year of diagnosis compared to patients of other races: whites (9.8%), Hispanics (7.4%) and Asian (10.7%) as listed in (Table 3).

Surgery was performed in 6.1% of patients within one year of diagnosis. Of these surgeries, 17% were performed for acute urinary retention, 7.6% for urinary tract infections and 1.2% for bladder stones. Among the men presenting with acute urinary retention, some (37%) did not have a trial of medications prior to surgery. African-Americans (21%) and Asians (18%) comprised the largest ethnics groups presenting with urinary retention compared to whites (17%) and Hispanics (15%) as presented in (Table 4). However, compared with whites in the total population with BPH, both Asian and African-Americans were less likely to have surgical intervention (adjusted odds ratios 0.63 and 0.83, respectively, p<0.05 after adjusting for age) while Hispanics were more likely to be operated (OR 1.5, p<0.001 after adjusting for age) as described in (Table 5).

Discussion

Benign prostatic hyperplasia is a common urologic diagnosis in American men over 50 years-old. California Medicaid (Medi-Cal) is a public health insurance program for low-income individuals including seniors and persons with disabilities. Since it serves the most populous and one of the most diverse states in the USA, Medi-Cal is an idea database to evaluate for racial disparities in the treatment of BPH. Our study included relatively high percentages of Hispanic (18.1%) and Asian (23%) minorities compared to prior studies on BPH with less than 3% [2,4].

Of the 53,172 men with BPH included in the study, a small percentage (16.2%) had an associated diagnosis of LUTS. The diagnosis of symptomatic BPH was determined by physician coding. It is unknown whether treating physicians, mostly primary care, decided on a diagnosis code of BPH without LUTS or believed that a diagnosis of LUTS was redundant. Objective measures of LUTS, such as AUA symptom score, were not available and not likely routinely performed by primary care physicians.

Prescription patterns were analyzed in the Medi-Cal database. Less than half (45%) of all patients diagnosed with BPH were prescribed a medication. It is possible that patients were not bothered enough to want medications. The Boston Area Community Health Survey reported a mere 9.6% of men reporting moderate to severe LUTS/BPH

symptoms were being treated with medication, but the survey does not report how many of those men actually complained to a physician about the symptoms [5]. Our results contrast with a multinational European study that showed an average prescribing rate of 62.5% by primary care physicians for an initial diagnosis of BPH and a multinational Asian study that showed an overall medication rate of 78% [6,7]. Perhaps the use of medications for BPH is more standardized for primary care physicians in other countries or the cost of medications for the patient are less.

When we assessed race/ethnicity as an independent factor for prescription patterns, we found that African-Americans were far less likely to be treated medically (28.6%) in the first year of diagnosis compared to patients of other races. This differs from an analysis of the Prostate Cancer Prevention Trial that reported a slightly higher percentage (56.5%) of African-Americans with BPH on medication compared to whites (51.3%) [2]. The difference could be that the Prostate Cancer Prevention Trial did not include individuals with a physician diagnosis of BPH alone in the absence of symptoms or treatment.

When we assessed race/ethnicity as an independent factor for surgical treatment of BPH, we found that African-Americans and

| Race | Number | Percent of race |
|----------|------------|-----------------|
| Missing | 2563/5472 | 46.84 |
| White | 8202/18596 | 44.11 |
| Black | 1412/4931 | 28.64 |
| Hispanic | 4192/9636 | 43.50 |
| Asian | 6547/12234 | 53.51 |
| Other | 1152/2303 | 50.02 |

Table 2: Medication use by racial groups.

| Race | Number | Percent of race on alpha blocker | Number | Percent of race on 5 alpha-reductase inhibitor |
|----------|-----------|----------------------------------|----------|--|
| Missing | 2514/2563 | 98.09 | 253/2563 | 9.87 |
| White | 8017/8202 | 97.74 | 805/8202 | 9.81 |
| Black | 1393/1412 | 98.65 | 79/1412 | 5.59 |
| Hispanic | 4120/4192 | 98.28 | 333/4192 | 7.94 |
| Asian | 6447/6547 | 98.47 | 701/6547 | 10.71 |
| Other | 1124/1152 | 97.57 | 133/1152 | 11.55 |

Table 3: Medication pattern by racial groups.

| Race | Number | Percent of race |
|----------|----------|-----------------|
| Missing | 67/347 | 19.31 |
| White | 184/1085 | 16.96 |
| Black | 36/171 | 21.05 |
| Hispanic | 129/853 | 15.12 |
| Asian | 110/607 | 18.12 |
| Other | 30/141 | 21.28 |

Table 4: Patients presenting with urinary retention before surgery by racial groups.

| Race | Number | Percent of patients with surgery |
|----------|------------|----------------------------------|
| Missing | 374/5472 | 6.83 |
| White | 1085/18596 | 5.83 |
| Black | 171/4931 | 3.47 |
| Hispanic | 853/9636 | 8.85 |
| Asian | 607/12234 | 4.96 |
| Other | 141/2303 | 6.12 |

Table 5: Patients undergoing surgery by racial groups.

Asians were less likely than whites while Hispanics were more likely than whites to undergo surgery if offered. In contrast, a study from community health centres in the south-eastern United States reported greater odds of surgical intervention in African-Americans than whites (12.9% vs. 9.1%) even after adjusting for income and health insurance coverage [1]. Analysis of the Prostate Cancer Prevention Trial also reported a higher percentage of African-Americans (10.9%) than whites (7.1%) having surgery [2]. None of the Hispanics or Asians in the Prostate Cancer Prevention Trial underwent surgery. Analysis of the Third National Health and Nutrition Examination Survey of men age 60 to 69 years-old showed a lower prevalence of surgery in African-Americans (5.7) but a higher prevalence of surgery in Hispanics (10.0) compared to whites (7.9) [3]. Analysis of the Health Professionals Follow-Up Study showed a lower relative risk of surgery for African-Americans (0.56) and Asians (0.44) than whites [4]. The range of findings for each racial and ethnic group likely reflects differences in patient selection, socioeconomic status, and access to healthcare.

Conclusions

We hypothesized that race and ethnicity would be independent factors in treatment of BPH. Analysis of the largest state health care database showed a significantly lower rate of medical and surgical treatment for African-Americans compared to whites despite the same health insurance. There were even lower odds of surgical treatment for Asians compared to whites. Given the prevalence of the disease, such important disparities in health care delivery in minority populations with BPH may reflect biological differences in disease expression or differential cultural attitudes of patients and care givers that will require further study.

This study has several limitations because it is based on data that did not have any quantification on the severity of the symptoms, and therefore the different racial groups may not necessarily be matched well. In addition the Medical population disproportionately represents the indigent population and conclusions may not necessarily be applicable to the general population. However, since access to medical care and medications was free, socioeconomic bias may be limited.

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