Hypertension Control and Access to Medical Care in the Inner City

Jane Morley Kotchen, MD, MPH, Bambade Shakoor-Abdullah, PhD, William E. Walker, MD, PhD, Thomas H. Chelius, MS, Raymond G. Hoffmann, PhD, and Theodore A. Kotchen

Approximately 25% of adults in the United States have hypertension, and hypertension prevalence among Blacks is 50% greater than among Whites. Between 1960 and 1991, age-, sex-, and race-specific prevalence rates for hypertension decreased for every US subgroup except Black men aged 50 years and older. To identify barriers to hypertension control among African Americans, we surveyed randomly selected African American households in Milwaukee’s inner city to assess hypertension control and medical care use. Because churches and community organizations have been identified as potentially effective avenues for improving control of high blood pressure in the inner city, we assessed the participation of inner-city residents in these organizations.

Methods

Our survey methods have been described elsewhere. We identified census tracts with predominately African American residents and interviewed only members of African American households. Interviewers attempted to interview all household members over the age of 18. To create a socioeconomic gradient within census tracts, we ranked each of the census blocks in areas of interest into higher (upper quartile), middle (25th–75th percentile), and lower (lower quartile) median rental categories to indicate the socioeconomic status (SES) of residents. The survey consisted of standardized measurements of blood pressure, height, weight and of questions to assess history of hypertension, use of antihypertensive medications, use of health care services, and household income level. We also inquired about participation in a variety of religious or community groups during the previous 12 months. The National Health and Nutrition Examination Survey (NHANES) blood pressure measurement protocol was used.

Statistical analysis of trends with SES (lower vs middle vs higher) used Cochran’s 1 df χ² test for trend. The test for trend in proportions used the 1 df χ² test. Logistic regression analysis was used to estimate the effect of SES on hypertension control.

Results

Interviews were conducted with 583 individuals from 438 households. Nineteen percent of the households contacted refused to participate. Households were selected from areas defined as lower, middle, and higher socioeconomic strata on the basis of census-determined median rental values. Mean annual household income differed (P < .0001) among the 3 strata ($11,201, $13,750, and $16,901, respectively). Mean educational level also differed (P < .0003) among the 3 strata (10.8 years, 11.5 years, and 11.8 years, respectively).

Persons with hypertension were defined as those with systolic blood pressure of 140...
mm Hg or higher and/or diastolic blood pressure of 90 mm Hg or higher or who were currently taking antihypertensive medications. The prevalence of hypertension among men and women did not differ. Among women, but not among men, the prevalence of hypertension was inversely related (P < .04) to SES. Overall, 70% of the hypertensive respondents had previously been informed of their hypertension by a physician, and more women (76%) than men (60%) were aware of their hypertension (P < .01). Hypertension awareness was not related to SES.

Fifty-five percent of the hypertensive individuals reported taking antihypertensive medications. More women (62%) than men (43%) were taking antihypertensive medications (P < .003), and among women, but not men, the percentage taking antihypertensive medications increased with increasing SES (P < .01). Hypertension was controlled (blood pressure < 140/90 mm Hg) in 47% of individuals taking antihypertensive medications, and it was controlled more often in women than in men (P < .03). Among hypertensive men, but not women, taking medications for blood pressure control was positively associated with SES (P < .02); 74% of the hypertensive individuals had uncontrolled hypertension (they were hypertensive but not taking medications or were taking medications but had blood pressure ≥ 140/90 mm Hg). The prevalence of uncontrolled hypertension was greater (P < .006) among men (84%) than women (68%), and uncontrolled hypertension decreased with increasing SES among women (P < .04). A similar but statistically nonsignificant trend was observed in men (Table 1).

Women were more likely than men to have seen a physician within the past 3 months (P < .0001), and 79% of women and 62% of men had seen a physician within 6 months of the survey (Table 2). Length of time since having seen a health care professional was related to SES for women (P < .05), but not for men; those women in the higher stratum were more likely to have seen a physician within the previous 3 months. More hypertension (64%) than normotensive (54%) individuals had seen physicians within the past 3 months (P < .02). Among hypertensive individuals, having seen a physician within the past 3 months was not associated with greater blood pressure control (P > .4).

A usual source of medical care was identified by 78% of men and 89% of women (P < .001). Hypertensive persons were more likely than normotensive persons to report a usual source of medical care (88% vs 82%; P < .06). Hypertensive persons (69%) were also more likely than normotensive persons (56%) to see the same health care provider at each visit (P < .009). Care from the same provider at each encounter was not associated with greater blood pressure control (P > .8). For both sexes, care by a private physician, in contrast to a nonprivate provider, was associated with higher SES (P < .001). There was no difference in hypertension control between individuals who reported receiving care from private physicians and those who reported receiving care from nonprivate providers (Table 3).

More women than men in the sample attended religious services within the past year (36% vs 27%; P < .03), and for both sexes, church attendance and involvement in community activities increased with increasing SES (P < .01). In the lower stratum, only 26% of men and 33% of women had attended any community activity during the past year.

**Discussion**

Our findings document that uncontrolled hypertension continues to be a major problem in the inner-city Milwaukee population. The prevalence of hypertension is high among both men and women, and it is inversely related to SES. Hypertension awareness is also high, and it is related to SES, with a higher percentage of women than men being aware of their hypertension. The prevalence of hypertension is higher among men than women, and it is related to SES, with a higher percentage of men than women being hypertensive. The prevalence of uncontrolled hypertension is higher among men than women, and it is related to SES, with a higher percentage of men than women having uncontrolled hypertension.

**Table 1**—Hypertension Awareness, Treatment, and Control, by Sex and Socioeconomic Status (SES): Inner-City Milwaukee, 1996

<table>
<thead>
<tr>
<th>Hypertensive, %</th>
<th>Lower SES (n = 49)</th>
<th>Middle SES (n = 118)</th>
<th>Higher SES (n = 53)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware, %</td>
<td>49</td>
<td>65</td>
<td>71</td>
<td>.04</td>
</tr>
<tr>
<td>Taking medication, %</td>
<td>41</td>
<td>55</td>
<td>64</td>
<td>.01</td>
</tr>
<tr>
<td>Taking medication and controlled, %</td>
<td>22</td>
<td>35</td>
<td>50</td>
<td>.02</td>
</tr>
<tr>
<td>Uncontrolled, %</td>
<td>91</td>
<td>84</td>
<td>75</td>
<td>.04</td>
</tr>
</tbody>
</table>

**Note.** NS = not significant.

**Table 2**—Time Since Last Visit to Health Care Provider and Source of Usual Medical Care, by Sex and Socioeconomic Status (SES): Inner-City Milwaukee, 1996

<table>
<thead>
<tr>
<th>Time since last visit to health care provider, %</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3 mo</td>
<td>43</td>
<td>60</td>
</tr>
<tr>
<td>3–6 mo</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>&gt;6 mo</td>
<td>39</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of usual medical care, %</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonprivate*</td>
<td>60</td>
<td>53</td>
</tr>
<tr>
<td>Private</td>
<td>17</td>
<td>29</td>
</tr>
<tr>
<td>None</td>
<td>23</td>
<td>18</td>
</tr>
</tbody>
</table>

**Note.** NS = not significant.

*Hospital-based or community-based clinic.
unresolved health problem among inner-city African Americans. Hypertension was uncontrolled in 74% of hypertensive persons identified in the survey. Women were almost 3 times as likely as men to have controlled hypertension. Within this inner-city population, lower SES had an adverse impact on the prevalence of hypertension and hypertension control in women. Similar trends were observed for men. Despite the high prevalence of uncontrolled hypertension, a majority of respondents reported receiving medical care within the previous 3 months. We anticipated that community organizations, particularly religious organizations, would be an effective vehicle for addressing hypertension control. However, we found little involvement in community organizations in this population, and the least involvement among those who were most disadvantaged.

The prevalence of hypertension in this Milwaukee sample (42%) is higher than that reported for non-Hispanic Blacks in NHANES III (32%), possibly reflecting the low SES of our inner-city population. However, the proportions of hypertensive individuals taking antihypertensive medications and the overall prevalence of uncontrolled hypertension are similar to those found in NHANES III data.

There is substantial evidence that lower SES and Black–White disparities in health care are associated with increased morbidity and mortality and that increased disease rates and mortality in lower SES groups are related to inaccessible medical care.8,10 Low-income Medicare beneficiaries (Black and White) have fewer visits to physicians for ambulatory care but greater hospitalization and mortality rates.17 In the 1983 and 1985 National Health Interview Surveys, lower SES was associated with fewer ambulatory care visits per year and a decreased likelihood of being screened for hypertension.18

Results of a more recent national survey also indicate that compared with White persons of higher SES, low SES Whites and Blacks were less likely to be seen in physicians’ offices, and the use of hospital outpatient departments and emergency rooms was approximately double that of White persons of higher SES.19

Although access to medical care has been shown to contribute to hypertension control in the inner city,20 our observations show a high prevalence of uncontrolled hypertension despite the availability of medical care in Milwaukee’s inner city. Most respondents had seen a physician within 6 months prior to the survey. Consistent with this conclusion is the observation that 85% to 98% of patients admitted for hypertensive emergencies to inner-city New York hospitals had previously been diagnosed and treated for hypertension, suggesting that uncontrolled hypertension is primarily related to nonadherence to treatment rather than failure to diagnose or initiate treatment.21

Access to medical care does not necessarily equate to effectiveness of care. Communication between physicians and patients may be less effective when the patient is of lower SES.22 One large US study reported that the quality of care was slightly worse for the poor than for the nonpoor.23 In the current study, although individuals with higher SES were more likely to have been seen in private physicians’ offices, the prevalence of uncontrolled hypertension was similar among individuals receiving medical care from private and from nonprivate providers.

In conclusion, uncontrolled hypertension continues to be a major health problem among inner-city African Americans, more so for men than for women. Despite a high prevalence of hypertension and uncontrolled hypertension, most respondents to the survey reported receiving medical care. Relatively few individuals reported participating in religious organizations or other community activities. On the basis of these observations, we suggest that developing methodologies to improve the effectiveness of provider–patient contacts within the health care system would be a fruitful approach to the challenge of uncontrolled hypertension in the inner city.

Acknowledgment

This research was supported by NIH grants HL51222 and HL54998.

References


Physician Financial Incentives and Feedback: Failure to Increase Cancer Screening in Medicaid Managed Care

Alan L. Hillman, MD, MBA, Kimberly Ripley, MAS, Neil Goldfarb, BS, Isaac Nuamah, PhD, Janet Weiner, MPH, and Edward Lusk, PhD

Although early detection methods have proven effective in preventing breast, cervical, and colorectal cancer in women more than 50 years of age, such methods remain underused.1 In particular, low-income women use them least, resulting in lower survival and higher mortality in this group than in the remainder of the population.2 Many studies have identified physician recommendation as an important determinant of a patient’s decision to undergo cancer screening.3,4 Despite this key role, many physicians do not adhere to national guidelines for cancer screening with their patients. Many methods (singly and in combination) have been used to improve physicians’ delivery of preventive care, including computer-generated reminders, medical record checklists, continuing education, and chart audits with feedback.5-8 Financial incentives can influence physician treatment behavior, but their ability to affect the delivery of preventive care has not been documented.9-14 We studied whether a combination of financial and nonfinancial incentives for physicians could improve compliance with cancer screening guidelines in a Medicaid health maintenance organization (HMO).

Methods

This randomized controlled trial evaluated an intervention designed to improve physician compliance with cancer screening guidelines for women 50 years of age and older. We conducted the study from 1993 to 1995 with Healthcare Management Alternatives Inc, a Medicaid managed care organization located in Philadelphia. Healthcare Management Alternatives is structured like an independent practice association, with provider sites paid by capitation. Its patient population is 76% Black, 13% White, 8% Asian, and 3% other.

Cancer screening guidelines were adapted from national recommendations that women 50 years of age and older receive an annual breast examination, mammogram, Pap smear, and colorectal screening (fecal occult testing or sigmoidoscopy).

We randomly assigned the largest 52 primary care sites to the intervention or usual care. We stratified the randomization by

The authors are all with the University of Pennsylvania, Philadelphia. Alan L. Hillman, Kimberly Ripley, and Janet Weiner are with the Division of General Internal Medicine, Department of Medicine, School of Medicine. Alan L. Hillman is also with the Health Care Systems Department, the Wharton School, and the Center for Health Policy, Leonard Davis Institute of Health Economics. Kimberly Ripley is also with the Center for Health Policy, Leonard Davis Institute of Health Economics. Neil Goldfarb is with the Center for Health Policy, Leonard Davis Institute of Health Economics, and Health Management Alternatives, Philadelphia. Isaac Nuamah is with the School of Nursing. Edward Lusk is with the Department of Statistics, the Wharton School.

Requests for reprints should be sent to Alan L. Hillman, MD, MBA, Center for Health Policy, Leonard Davis Institute of Health Economics, 3641 Locust Walk, Philadelphia, PA 19104-6218.

This article was accepted April 23, 1998.