The purpose of this study is to describe demographic features and clinical diagnoses in a sample of demented urban black outpatients and to report the frequency of different causes of dementia in this patient sample. Retrospective chart review was used to identify demented black outpatients who had completed a full neurodiagnostic evaluation and had received clinical diagnoses using standardized research diagnostic criteria. Probable Alzheimer's disease was the most common cause of dementia in this sample (43% of cases). Probable vascular dementia was uncommon (7%). A multiple etiology dementia was identified in more than one third of the patients.

Key Words: African Americans, Alzheimer's disease, Satellite clinics, Multiple etiology dementia

Dementia in Urban Black Outpatients: Initial Experience at the Emory Satellite Clinics

Alexander P. Auchus, MD

Dementia in urban black Americans has received little scientific study. The prevalence of dementia in urban blacks and the frequency of different causes of dementia in this population are largely unknown. Some studies of dementia in black Americans have surveyed community-based populations in rural regions of the Southeast (Heyman et al., 1991; Schoenberg, Anderson, & Haerer, 1985), and one study has reviewed diagnostic data on patients in state mental health facilities in South Carolina (Still, Jackson, Brandes, Abramson, & Macera, 1990). Other studies have focused on clinic-based populations in the Northeast (Cohen & Carlin, 1993; Fabrega, Mezzich, & Ulrich, 1988) or Midwest (Gorelick et al., 1994). Even though these studies have employed a variety of different diagnostic criteria and study designs, their collective results suggest that Alzheimer's disease is the most common cause of dementia in black Americans, as it is in American whites.

In the past few years, the National Institute on Aging has funded the development of “satellite” clinics at existing Alzheimer's Disease Centers (ADCs). These clinics target minority or rural populations, and represent potential sources of much needed information on dementia and Alzheimer's disease in these patient groups. In conjunction with the ADC at Emory University in Atlanta, Georgia, two satellite memory assessment clinics (MACs) have been established in predominantly black Atlanta neighborhoods in an effort to advance patient care and clinical research on dementing illnesses in black Americans. This descriptive study reviews the initial data collected from demented black outpatients seen at the Emory satellite MACs and reports on the frequency of different causes of dementia encountered in this patient sample.

Methods

The Emory satellite MACs are outpatient clinics administered by the Department of Neurology at Emory University School of Medicine. One MAC is located at the 1,045-bed Grady Memorial Hospital in downtown Atlanta. The other MAC is located in Southeast Atlanta, at a primary care site affiliated with the aforementioned hospital. Patients are referred to the MACs by internists, family practice physicians, nurse practitioners, mental health professionals, and neurologists. The majority (81%) of the patients seen at the MACs are referred by primary care clinicians. Very few patients (7%) are self-referrals. The socioeconomic status of patients seen at the MACs is very low — approximately 95% have annual incomes below the federally determined poverty level.

The Emory ADC employs several methods to accomplish its outreach efforts. These include direct outreach efforts to potential patients and their families in the local community, as well as outreach efforts directed toward primary care referral sources. Community-based methods include the presence of the MACs' nurse-coordinator at local health fairs, complementary lectures given by the nurse-coordinator and the clinic director at seniors' cen-
The Gerontologist

Demented patients seen at the MACs undergo a full neurodiagnostic evaluation including examination by a behavioral neurologist, basic hematological and biochemical screening profiles, vitamin B-12 and folate levels, thyroid stimulating hormone level, a specific treponemal test (fluorescent treponemal antibody absorption or microhemagglutination — *Treponema pallidum*) with lumbar puncture if positive, and a brain imaging study (computed tomography or magnetic resonance imaging). The behavioral neurologist’s examination includes a general physical examination plus a neurobehavioral evaluation in which each patient’s attention, memory, language function, visuospatial function, praxis and judgment are specifically assessed. This evaluation also includes a detailed systems review which screens for psychotic, affective, and anxiety symptoms and includes the administration of Folstein’s Mini Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975).

A retrospective chart review was performed on the first 100 patients evaluated at the satellite MACs. The behavioral neurologist conducting this review assigned all patients’ diagnoses in accordance with the following methods. Dementia was defined using criteria from the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition, revised (DSM-III-R; 1987). Probable and possible Alzheimer’s disease (AD) were diagnosed by criteria established by the National Institute of Neurological and Communicating Disorders and Stroke — Alzheimer’s Disease and Related Disorders Association Work Group (NINCDS-ADRDA) (McKhann et al., 1984). Probable and possible vascular dementia (VaD) were diagnosed by the criteria of the National Institute of Neurological Disorders and Stroke — Association Internationale pour la Recherche et l’Enseignement en Neurosciences International Workshop (NINDS-AIREN; Román et al., 1993). The dementia syndrome of depression (Emery & Oxman, 1992; Folstein & McHugh, 1978; Stoudemire, Hill, Gulley, & Morris, 1989) was diagnosed when depression (Major Depressive Episode by DSM-III-R criteria [1987]) was judged to be significantly contributing to the patients dementia. Since there are no validated research diagnostic criteria for the diagnosis of dementia secondary to alcohol abuse, Parkinson’s Disease (PD), or the other dementing conditions encountered in MAC patients, these diagnoses were made based on careful consideration of all historical, examination, laboratory and neuroimaging data. When there was sufficient evidence to incriminate more than one disease process as contributing to a patient’s dementia, each dementing illness was included in the final diagnosis. For example, if a patient met diagnostic criteria for both possible AD and possible VaD, the final diagnosis would be possible AD + possible VaD.

Results

Of the first 100 patients evaluated at the satellite MACs, 90 were black. Of these 90 patients, 69 met DSM-III-R (1987) diagnostic criteria for dementia. Most of the nondemented patients were symptomatic from psychiatric illnesses. Fifty-eight of the 69 demented black patients completed the full neurodiagnostic evaluation outlined above. The patients who completed the evaluation did not differ significantly (p > .05) in age, gender, years of education, duration of cognitive symptoms, or MMSE score from those who did not complete the evaluation. The following results are based on data from the 58 demented black patients who completed the full neurodiagnostic evaluation.

Demographics

Forty-four (76%) of the 58 demented black patients were female, and 14 (24%) were male. Patients’ ages ranged from 61 to 93 years, with an average age of 74.6 ± 6.5 years (mean ± standard deviation). Patients’ had an educational level of 7.6 ± 3.4 years (range = 1 to 14 years), and a duration of cognitive symptoms of 3.7 ± 4.6 years (range = 3 months to 30 years). Mini-Mental State Examination (Folstein, Folstein, & McHugh, 1975) scores ranged from 2 to 27, with an average score of 15.4 ± 6.8. Coexisting medical illness was common in these patients; there was historical evidence of ongoing hypertension in 42 patients (72%) and of ongoing diabetes mellitus in 15 patients (26%).

Diagnoses

The most common diagnosis in these patients was probable AD, which was diagnosed in 25 patients (43%). Possible AD + possible VaD was the next most common diagnosis and was encountered in nine patients (16%). Probable VaD was diagnosed in four patients (7%), and possible AD + alcohol abuse was diagnosed in four patients (7%). Other combinations of AD, VaD, the dementia syndrome of depression, vitamin B-12 deficiency and hydrocephalus, or other single causes of dementia were diagnosed in the remaining patients. Table 1 lists all the diagnoses and their respective frequencies. Although dementia due to a single etiology was identified in the majority (66%) of these demented black patients, 20 patients (34%) had more than one cause of dementia diagnosed. The most common combinations of dementia etiologies occurring in individual patients were possible AD + possible VaD.
Table 1. All Dementia Etiologies and Their Respective Frequencies (n = 58)

<table>
<thead>
<tr>
<th>Etiology</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probable AD</td>
<td>25</td>
<td>43</td>
</tr>
<tr>
<td>Possible AD + possible VaD</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Probable VaD</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Possible AD + alcohol abuse</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Possible AD + dementia syndrome of depression</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Dementia syndrome of depression</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Possible AD + B-12 deficiency</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Possible VaD + dementia syndrome of depression</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Dementia syndrome of depression + B-12 deficiency</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Dementia of Parkinson's Disease</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hydrocephalus</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>Traumatic brain injury</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Encephalitis</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sarcoid meningitis</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sleep apnea</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Deficit syndrome of chronic psychosis</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

(9 patients) and possible AD + alcohol abuse (4 patients).

Discussion

Alzheimer's disease proved to be the most common illness causing dementia in black outpatients seen at the Emory satellite MACs. Either probable AD or possible AD was present in the great majority (72%) of these patients. This finding is consistent with results from an earlier clinic-based study in New York City (Cohen & Carlin, 1993) which found "primary degenerative dementia" (the DSM-III-R [1987] diagnosis most closely approximating probable AD) to be the most common cause of dementia in black patients seen in that dementia clinic. The results of the present study are also consistent with results from published community-based studies. One such study (Schoenberg et al., 1985) found "presumed AD" to be the cause of dementia in 59% of demented blacks, and another (Heyman et al., 1991) found probable AD in 63% of demented blacks. Thus, results from the present study, as well as results from earlier investigations, suggest that AD is the most common cause of dementia among black outpatients.

Cerebrovascular disease contributed to dementia in 15 MAC patients. While probable VaD was encountered as the sole cause of dementia in only four MAC patients, possible VaD mixed with other dementing illnesses was identified in 11 additional patients. Thus, either probable VaD or possible VaD was present in 26% of these demented black outpatients. The relatively low frequency (7%) of dementia due solely to cerebrovascular disease (probable VaD) is surprising, especially considering the high rates of coexisting hypertension and diabetes mellitus seen in MAC patients. One possible explanation for this low frequency of probable VaD is that most patients referred to satellite MACs are referred by primary care clinicians who are actively treating these patients' medical illnesses. Since most demented patients evaluated at satellite MACs are already receiving regular medical care, their hypertension, diabetes, and other medical problems may be under relatively good control. As it has been demonstrated that good control of stroke risk factors lessens the incidence of stroke (Coope & Warrender, 1986; Ostfeld, 1980), it is also likely that vascular dementia will be less common in patients with well controlled stroke risk factors.

Another possible explanation for the low frequency of probable VaD in MAC patients relates to the NINDS-AIREN diagnostic criteria (Román et al., 1993) used in this study. These diagnostic criteria have only recently been proposed, and experience with them in research populations is limited. They differ from older Multi-infarct Dementia (MID) criteria (DSM-III-R [1987]) in several respects. Two major differences are NINDS-AIREN's emphasis on neuroradiological evidence of cerebrovascular disease, and NINDS-AIREN's emphasis on a clear temporal relationship between cerebrovascular disease and the onset of dementia. Whether the various methods of diagnosing VaD are too strict or too lenient is a matter of continued debate (Brust, 1988; Erkinjuntti & Hachinski, 1993; Joynt, 1988; O'Brien, 1988), and the NINDS-AIREN criteria are only one of several new efforts (Chui et al., 1992; Román et al., 1993; World Health Organization, 1992, 1993) to improve diagnostic reliability in this confusing field. At this time, the utility and validity of the NINDS-AIREN criteria for VaD remain to be determined, and these determinations will depend on clinical studies such as this one, together with studies correlating neuropathological and clinical diagnoses.

Although AD and VaD, either alone or in combination, were diagnosed in most MAC patients, non-AD, non-VaD dementias were identified in 10 (17%) patients. The dementia syndrome of depression (Emery & Oxman, 1992; Folstein & McHugh, 1978; Stoudemire et al., 1989) was the most common non-AD, non-VaD dementia encountered in satellite MAC patients. Depression has been reported to be present in approximately 15% of demented patients seen at some dementia clinics (Reding, Haycox, & Blass, 1985); however, the prevalence of this diagnosis in demented black patients is not well established. The other non-AD, non-VaD dementias diagnosed in MAC patients include many of the usual neuropsychiatric conditions capable of producing dementia. However, one notable exception is the dementia of PD. Only one black outpatient evaluated at the Emory satellite MACs was diagnosed with the dementia of PD. Heyman et al. (1991) found no cases of dementia due to PD among the 19 demented black subjects in their community-based survey. Similarly, out of 66 demented black patients in the autopsy series of de la Monte, Hutchins, & Moore (1989), only one case of dementia due to PD was found. The same authors found 5 cases of dementia due to PD in their 78 white patients — a difference of borderline statistical significance. Several studies have suggested that dementia complicates PD in 11-55% of patients (Boller, Mizutani, Roessmann, & Gambetti, 1980; Mayeux et al., 1988). Whether dementia complicates PD...
in blacks at a similar frequency as it does in whites remains unstudied.

An important result of this study is the high proportion (34%) of demented black MAC patients who had a multiple etiology dementia — that is, patients in which more than one disease process was potentially contributing to their cognitive impairment. This phenomenon has not been specifically evaluated in most published studies of dementia in blacks. In the community-based survey of Heyman et al. (1991), 26% of demented blacks who were classified as “mixed or MID,” with “mixed” indicating AD plus cerebrovascular disease. No description of other combination dementias was mentioned in that study, although this could be due to the small number (n = 19) of demented blacks in that investigation. In the autopsy study of de la Monte et al. (1989), 26% of demented blacks had neuropathological evidence of multiple conditions contributing to dementia. Unfortunately, those authors did not specifically describe the various combinations of dementing conditions in their patients.

The present study has several limitations. One potential weakness is that all diagnoses were made by a single rater; however, this rater employed standardized research diagnostic criteria as described above. Another limitation is the lack of neuropathological verification of these clinical diagnoses. Although the agreement rate between the clinical diagnosis of AD and the neuropathological diagnosis of AD can reach 87% (Gearing et al., 1995; Tierney et al., 1998), it is impossible to be certain of the neuropathological diagnoses in the MAC patients. This is a difficult problem to overcome, since obtaining consent for autopsy in black patients is often difficult (Connell, Ave, & Holmes, 1994; Harrell, Callaway, & Powers, 1993). Another important limitation of this study is patient selection bias. The patients evaluated at the satellite MACs represent a specific subset of black outpatients, a subset which is not necessarily representative of the larger population of urban black Americans. The patients in this study were elderly, predominantly female, of low socioeconomic status, and most were receiving ongoing professional care for one or more medical illnesses. Furthermore, the 58 patients whose diagnoses were determined are a subset of the 69 demented black patients initially seen at the MACs. Eleven demented black patients were lost to follow-up before the full neurodiagnostic evaluation could be completed.

Despite these limitations, results from this initial descriptive study should prove useful to clinicians and investigators who work with demented black outpatients. For the clinician, the high proportion of multiple etiology dementias observed in this sample of demented black outpatients has important practical implications. This finding suggests that clinicians caring for demented blacks should be especially vigilant for treatable comorbid dementia conditions in this patient population. These conditions include cerebrovascular disease, depression, alcohol abuse, vitamin deficiencies and hydrocephalus. The relatively high frequency of these comorbid conditions in MAC patients also suggests that some dementia in blacks may even be preventable through the early identification and treatment of these problems. The results from the present study also have important implications for the investigator. Since results from this study and results from several prior investigations indicate that AD is common in demented black outpatients, future research on AD should include representative numbers of black subjects. In support of this view, the National Institutes of Health have recently increased their efforts to rectify the current lack of minority representation in clinical research by publishing additional guidelines for including women and minority subjects in clinical research projects (National Institutes of Health, 1994). It is hoped that such efforts will lead to a more complete understanding of dementia and AD, and eventually to better care for all people affected with these disorders.

References


Received November 29, 1995

Accepted June 2, 1996

NOTICE TO AUTHORS

Beginning January 1, 1997

Manuscripts for The Gerontologist Should Be Sent to

Vernon L. Greene, PhD
Center for Policy Research
Maxwell School of Citizenship and Public Affairs
Eggers Hall, Syracuse University
Syracuse, NY 13244-1020