Mild Cognitive Impairment, Incidence, Progression, and Reversion: Findings from a Community-Based Cohort of Elderly African Americans

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Objective: *To examine the long-term outcomes of community-based elderly African Americans by following their transitions from normal cognition to mild cognitive impairment (MCI) to dementia.* **Methods:** *Participants were from the community-based Indianapolis Dementia Project. A total of 4,104 African Americans were enrolled in 1992 or 2001 and followed until 2009 with regularly scheduled evaluation of cognitive assessment. A two-stage sampling was used at each evaluation to select individuals for extensive clinical assessment following the results of Stage 1 cognitive testing. Age- and gender-specific incidence, progression, and reversion rates for MCI were derived using the person-year method in a dynamic cohort and predicted probabilities from weighted multinomial logistic models of transitional probabilities among normal cognition, MCI, and dementia.* **Results:** *Annual overall incidence rate for MCI was 5.6% (95% confidence interval [CI]: 4.6%−6.6%). Annual progression rate from MCI to dementia was 5.9% (95% CI: 5.3%−6.5%), and annual reversion rate from MCI to normal was 18.6% (95% CI: 16.7%−20.4%). Both MCI incidence rates and MCI to dementia progression rates increased with age, whereas reversion rates from MCI to normal decreased with age.* **Conclusion:** *MCI progression to dementia was much more frequent in the older age groups than in younger participants where reversion to normal cognition is more common. Future research is needed to determine factors related to the heterogeneous outcomes in MCI individuals.* (Am J Geriatr Psychiatry 2013; ■:■−■)

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INTRODUCTION

Dementia including Alzheimer disease (AD) affects millions of elderly Americans and is emerging as a major public health problem. In an effort to identify individuals at higher risk for dementia, the intermediate stage between normal cognition and dementia has been characterized as mild cognitive impairment (MCI).[1] Individuals in the MCI group were shown to progress to dementia at a higher rate than those with normal cognition, suggesting that some MCI individuals may be at the early stage of dementia. However, epidemiologic studies have also found that a substantial proportion of individuals with MCI revert to normal cognition, indicating a highly heterogeneous nature of the MCI group.[2–7] Information on the epidemiology of individuals with MCI, including incidence, progression, and reversion, can help identify individuals at risk for dementia and lead to potential preventive measures in delaying conversion to dementia.

Previous studies on MCI have focused on separate cohorts of cognitive normal individuals at baseline for estimating incidence and cohorts of individuals with MCI at baseline for dementia progression. These studies have reported annual MCI incidence rates ranging from 0.85% to 12.2%[3–5,7–19] and annual progression rates to dementia ranging from 0.9% to 15.3%.[20] Because MCI is known to be a transient state between normal cognition and dementia, it is essential to examine the incidence and progression of MCI simultaneously in population-based cohorts to appropriately account for transitions between normal cognition and MCI during follow-up. Few studies, if any, have examined the long-term outcomes of community-based elderly individuals by following their transitions from normal cognition to MCI and dementia. Various studies have indicated that African Americans are more likely than whites to have AD and other dementia.[21] African Americans are also known to have higher prevalence of hypertension and diabetes than other ethnic groups, leading to potentially higher rates of MCI or MCI conversion rates.[22,23] However, there has been little research on the natural history of MCI in African Americans. In this study, we report the incidence, progression, and reversion rates of MCI in an elderly African American cohort from the Indianapolis Dementia Project.

METHODS

Study Participants

Participants were from the Indianapolis cohort of the Indianapolis-Ibadan Dementia Project, a longitudinal study examining risk factors for dementia. Recruitment to the study was conducted at two time points. In the first recruitment in 1992, a cohort of African Americans aged 65 or older living in Indianapolis was enrolled in the study. The geographic target area used in the study consisted of 29 contiguous census tracts in which African Americans represented 80% of the population in the 1990 U.S. census. Interviewers went door-to-door to randomly sampled addresses to invite African Americans aged 65 years and over to participate. In 1992, 2,212 individuals were enrolled, whereas 249 (9.6%) refused and 121 (4.7%) were too sick to participate.

In 2001, the project enrolled additional community-dwelling subjects randomly selected from Medicare records who self-identified as African Americans and were at least 70 years old. The age cut-off for the 2001 cohort was chosen to maintain comparability with the 1992 cohort because the youngest participants in the 1992 cohort had since turned 70. Of 7,583 eligible individuals, interviewers were able to contact 4,433 by telephone or home visit. Of those contacted, 1,892 (43%) were enrolled, 2,020 (46%) refused, 369 (8%) were too ill, 100 (2%) were deceased, 54 (1%) had moved in nursing homes, and 14 (0.3%) were not African Americans.

The two cohorts were similar in basic demographics. Mean age during the 2001 evaluation was 77.4 (standard deviation [SD]: 6.0) for the 1992 cohort and 76.8 (SD: 5.6) for the 2001 cohort. The two cohorts also have similar gender distributions (65.3% women in the 1992 cohort and 65.0% in the 2001 cohort).[24] All participants agreed to undergo regular follow-up cognitive assessment and clinical evaluations.

The study was approved by the Indiana University-Purdue University of Indianapolis Institutional Review Board. All subjects enrolled provided informed consent. Details on the assembling of the original cohort and the enrichment cohort are described elsewhere.[24,25]

Study Design

The Indianapolis-Ibadan Dementia Project is a prospective community-based study with a baseline