Memory Complaints Correlate with Memory Performance Among Asymptomatic Alzheimer’s Offspring

Asenath La Rue 1, Bruce P. Hermann 2, Mark A. Sager 1
1Wisconsin Alzheimer’s Institute (WAI) and 2Department of Neurology, University of Wisconsin Medical School, Madison, Wisconsin

BACKGROUND

SUMMARY OF RESULTS

METHODS

Older adults’ subjective memory complaints have been found to be more closely related to depression, personality, and physical health than to objective measures of memory performance. However, recent longitudinal studies have reported associations between subjective memory complaints and subsequent declines in memory or increased risk of dementia.

Family members of persons diagnosed with AD may have special impetus to monitor and evaluate their own everyday memory skills because of their close genetic and social relationships with individuals with severe memory loss.

OBJECTIVES

We report baseline findings for middle-aged children of persons with AD enrolled in a research registry for the study of AD risk factors and prevention, the Wisconsin Registry for Alzheimer’s Prevention (WRAP).

Our objectives were to determine the prevalence of subjective memory complaints in this at-risk sample and to assess the relationship between complaints and performance on memory tests, taking into account potential confounders such as depressive symptoms, health status, and APOE genotypes.

RESULTS

Table 1. WRAP Participants with and Without Memory Complaints

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Complaint (n=101)</th>
<th>No Complaint (n=327)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
<td>53.25 (5.91)</td>
<td>52.66 (6.38)</td>
</tr>
<tr>
<td>Education in years</td>
<td>16.16 (2.51)</td>
<td>16.00 (2.66)</td>
</tr>
<tr>
<td>Female gender, n (%)</td>
<td>79 (78)</td>
<td>223 (68)</td>
</tr>
<tr>
<td>White/Caucasian, n (%)</td>
<td>98 (97)</td>
<td>320 (98)</td>
</tr>
</tbody>
</table>

TABLE 2. WRAP MEMORY PERFORMANCE OF WRAP PARTICIPANTS

<table>
<thead>
<tr>
<th>Measure</th>
<th>Complaint (n=101)</th>
<th>No Complaint (n=327)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory Verbal Learning Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trial 1</td>
<td>6.31 (1.77)</td>
<td>6.28 (1.57)</td>
</tr>
<tr>
<td>Trial 2</td>
<td>9.06 (2.22)</td>
<td>9.42 (2.07)*</td>
</tr>
<tr>
<td>Trial 3</td>
<td>10.82 (2.12)</td>
<td>11.20 (2.06)*</td>
</tr>
<tr>
<td>Trial 4</td>
<td>11.85 (1.89)</td>
<td>12.14 (1.68)*</td>
</tr>
<tr>
<td>Trial 5</td>
<td>12.46 (1.97)</td>
<td>12.75 (1.80)*</td>
</tr>
<tr>
<td>Learning total (sum of 5 trials)</td>
<td>50.50 (8.45)</td>
<td>51.80 (7.94)*</td>
</tr>
<tr>
<td>List B</td>
<td>5.63 (1.62)</td>
<td>5.94 (1.59)*</td>
</tr>
<tr>
<td>Trial 6 (recall after interference)</td>
<td>10.50 (2.76)</td>
<td>10.08 (2.62)</td>
</tr>
<tr>
<td>Delayed recall</td>
<td>10.47 (3.07)</td>
<td>10.18 (2.88)</td>
</tr>
</tbody>
</table>

WMS-III Faces

I - Immediate recognition | 38.28 (3.70) | 37.85 (4.58) |
II - Delayed recognition | 39.52 (3.53) | 39.42 (4.17) |

Full-Stroke IQ Estimate (WAIS) | 113.96 (9.93) | 113.07 (8.94) |

Word Reading (WRAT3) Standard Score | 106.27 (9.24) | 105.18 (10.23) |

Working Memory Index Score (WAIS-III) | 103.72 (14.16) | 105.53 (12.62) |

Medications and Supplements

Antidepressants, n (%) | 24 (24) | 66 (20) |
Estrogen, n (%) | 23 (23) | 92 (30)* |
Vitamin B, n (%) | 16 (16) | 52 (16) |
Vitamin E, n (%) | 52 (52) | 168 (51) |

Sample: 428 cognitively-normal community-residing volunteers, 40 to 65 years old, English speaking, had a parent with either autopsy-confirmed or probable AD, and no history of neurological disorder or stroke.

Subjective Memory Measure:

"Do you feel that you have problems with your memory?" Three response options: Yes, No, Don’t know. Don’t know responders were combined with negative responders in analyses.

Objective Memory Measures:

Learning and recall of 15 words (Auditory Verbal Learning Test, Rey, 1964) and recognition of unfamiliar faces (Wechsler Memory Scale-III Faces I and II, Wechsler, 1997).

DISCUSSION

Children of persons with AD are a potentially high-risk group with regard to concern about everyday memory performance (see quote). To our knowledge, this is the first study that focused on memory concerns in this group.

At this point, verbal learning differences related to subjective memory complaints are too small to be of clinical significance. However, memory complaints are one of the few statistically significant predictors of verbal memory scores in this relatively young healthy sample. We do not know if “worried well” AD children are detecting subtle difficulties in everyday memory that are being reflected in mildly lowered memory test performance. If self-doubt may have interfered with performance, or if outcomes are due to a common factor that remains to be identified.

A 4-year longitudinal follow-up is planned to determine if memory complaints are predictive of changes in memory performance.

Note. Tabled values are raw score means (SDs) unless otherwise noted.

1*APOE allele 4, n (%) | 37 (37) | 153 (49)*
2*P < .05 with age, education, and gender covaried
3**P < .01

By 2050 nearly 14 million people in the United States will be diagnosed with Alzheimer’s disease. About 19 million Americans say someone in their family has Alzheimer’s disease.

"I sometimes wonder if I could be in the pre-stages of Alzheimer’s. With the history I have [i.e., mother affected, as well as several other family members] I guess it is normal to wonder. I have been driving and forgoing other things when I was going through strange places, and of course, have memory problems at times. Nothing real alarming... it is a horrible disease and affects so many.” -WRAP participant

"I don’t know responders were combined with negative responders in analyses.

About 4 million people in the United States have been diagnosed with Alzheimer’s disease.

One in four (24%) WRAP participants reported problems with their memory.

Participants with memory complaints had a higher level of current depressive symptoms and more medical illnesses overall (see Table 1).

There were no differences in demographics, history of diagnosed depression or anxiety disorder, use of antidepressant medication, frequency of exercise, or alcohol or tobacco use. Prevalence of an APOE e4 allele was higher in the no-complaints group.

Participants with memory complaints showed slower verbal list learning than those without complaints, with demographics covaried (see Table 2). Differences remained significant when CES-D scores and sum of illnesses were added as covariates. There were no differences in face recognition performance.

APOE allele 4, n (%) | 37 (37) | 153 (49)*