The course and end-points of Alzheimer’s disease according to sociodemographics, apolipoprotein E genotype and cognitive ability.

Wattmo, Carina; Londos, Elisabet; Minthon, Lennart

2017

Document Version:
Publisher’s PDF, also known as Version of record

Link to publication

Citation for published version (APA):
The course and end-points of Alzheimer’s disease according to sociodemographic and apolipoprotein E genotype and cognitive ability

Carina Wattmo, Elisabet Londos, Lennart Minthon
Clinical Memory Research Unit, Department of Clinical Sciences, Malmö, Lund University, Sweden

BACKGROUND

The prognosis of AD might be influenced by many sociodemographic and clinical factors, for example, age at AD diagnosis, sex, APOE genotype, living alone, and cognitive performance. End-points, such as NH placement and death, and the associated costs of care, may depend on these patient characteristics. Most earlier studies have investigated the main effects of various critical predictors that could affect the course of AD, but few have analysed potential interactions. This presentation aims to study long-term cognitive outcomes, time to NH, survival time in NHs, and life expectancy by interactions between the above-mentioned factors in cholinesterase inhibitor (ChEI)-treated AD patients.

METHODS

The Swedish Alzheimer Treatment Study (SATS) is a prospective, observational, multicentre study for the longitudinal evaluation of CNTX therapy in clinical practice. This presentation includes all 224 deceased SATS participants diagnosed with mild to moderate AD (MMSE score 10–26) at the initiation of CNTX treatment, i.e., at the time of diagnosis (who were admitted to NHs during the study period). Sociodemographic characteristics, APOE genotype, dates of NH and death were recorded. Cognitive abilities, e.g., MMSE scores, were assessed at the start of CNTX therapy (baseline) and semi-annually over 3 years. Chi-square tests (Table 1) were performed to analyse categorical variables. Independent-samples t tests (Table 1) and one-way analysis of variance (ANOVA) with Bonferroni correction (Figures 1–4) were used to compare differences between the means obtained for two and four groups, respectively.

RESULTS

Table 1. Sociodemographic and clinical characteristics by age at AD diagnosis, median cut-off 78 years (n = 224)

<table>
<thead>
<tr>
<th>Age group</th>
<th>Male sex</th>
<th>Female sex</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤77 years</td>
<td>81/78%</td>
<td>69/73%</td>
<td>0.540</td>
<td></td>
</tr>
<tr>
<td>≥78 years</td>
<td>66% ± 18%</td>
<td>53% ± 17%</td>
<td>0.138</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1.

Figure 2.

Figure 3.

Figure 4.

CONCLUSIONS

This study shows that interaction effects between sociodemographic characteristics and clinical factors affect the course and end-points of Alzheimer’s disease (AD). Despite similar cognitive ability at AD diagnosis, younger patients exhibited longer time to nursing home placement (NH/P) and lower cognitive status at the time of admission than older individuals. In the ≤77 year old group, there was a significantly longer survival time in nursing homes (NH/P ≥ 5 years), and thereby higher cost of care, might be expected in females, mild AD patients and apolipoprotein E (APOE) 4-carriers. Younger persons with moderate AD showed remarkably low cognitive ability at NH/P (mean Mini-Mental State Examination (MMSE) score 12), these individuals might need increased support.

REFERENCES

Of the 224 participants living alone at baseline (≤77 years old), 20.1% of males ≥78 years old were living alone compared with 10.6% of those ≤77 years old (p < 0.001). The observed difference was also present among females. Males ≥78 years old had lower cognitive ability at NH/P than their younger counterparts: mean MMSE score (95% CI), 11.7 (10.1–13.1) vs. 15.0 (13.5–16.5); 78 years old living alone (21.1 [18.1–24.1] points), ≥78 years old living with family (mean MMSE score [95% CI], 12.1 [10.8–13.4] points). Females ≥78 years old exhibited shorter time to NH/P (14.4 [11.6–17.3] months) compared with the other groups: 24.8 [20.2–29.3] months, ≤77 years old living with family (mean MMSE score [95% CI], 16.3 [14.9–17.7] points). No differences in cognitive status at AD diagnosis, median cut-off 78 years (p = 0.021). Younger compared with older patients with mild AD: 22.9 [20.7–25.1] points vs. 15.7 [14.2–17.2] points, ≤77 years old living with family (mean MMSE score [95% CI], 12.1 [10.8–13.4] points). 4-allele carriers ≤77 years old compared with those ≥78 years old: 5.0 [4.4–5.7] years vs. 3.8 [3.2–4.5] years, p = 0.002. The above-mentioned differences were not observed among the AD ≥78 years old living alone (21.1 [18.1–24.1] points), ≥78 years old living with family, (2.8 [1.7–3.8] years) and females ≥78 years old, (4.1 [3.4–4.7] years), compared with the other groups: 24.2 months, ≤77 years old living with family (mean MMSE score [95% CI], 16.3 [14.9–17.7] points). Of the 119 participants living alone at baseline ≥78 years old, 20.1% of males ≥78 years old were living alone compared with 10.6% of those ≤77 years old (p < 0.001). The observed difference was also present among females ≥78 years old living alone (18.5 [17.1–19.9] months) vs. 12.0 [10.7–13.3] months, ≤77 years old living with family (mean MMSE score [95% CI], 12.1 [10.8–13.4] points). The solitary-living patients ≥78 years old demonstrated a shorter time to NH/P (14.4 [11.6–17.3] months) than the other groups: 24.8 [20.2–29.3] months, ≤77 years old living with family (mean MMSE score [95% CI], 12.1 [10.8–13.4] points).