Risk Factors for Nursing Home Placement in Cholinesterase Inhibitor Treated Naturalistic Alzheimer Patients.

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Conclusions

Female gender and patients living alone at start of treatment demonstrated larger risk of early NHP. Faster decline in instrumental ADL-ability, solitary living and more severe cognitive and functional impairment at start of treatment were factors associated with shorter distribution of time to admission to a nursing home. The rate of cognitive decline indicated no impact on the amount of time to NHP.

Background and objectives

Alzheimer's disease (AD) is the most common form of dementia in the elderly and is considered today to be one of the principle causes of increments in health care costs. Cognitive and functional abilities are factors that have been considered to influence the time until nursing home placement (NHP). The aim of this study was to search for factors that increased the risk of NHP in patients with AD receiving long-term cholinesterase inhibitor treatment.

Methods and subjects

The Swedish Alzheimer Treatment Study (SATS) is a 3-year ongoing, open-label, non-randomized, prospective, multicentre study in a routine clinical setting. Patients with the diagnosis of AD, living at home at the time of inclusion, were treated with donepezil, rivastigmine or galantamine. They were assessed with several functional and cognitive rating scales including MMSE, ADAS-cog, IADL and PSMS at baseline and every 6 months over the course of 3 years. The first 880 subjects with mild to moderate AD (baseline MMSE score 26 – 10) that had the opportunity to complete the full study were investigated in regards to NHP. In total, 206 of these patients were admitted to nursing homes during the study. The remaining 674 subjects completed the 3-year study or withdrew for reasons other than NHP. The following risk factors for the event NHP (Chi-square and T-tests) and the time until NHP (Cox regression) were investigated: gender, APOE4-carrier, living status (alone or with family member), level of education, age, illness duration, cognitive and functional level at baseline and the rate of decline in cognition and function per month.

Baseline characteristics	
Number of patients (n)	880
Gender (males / females)	37% / 63%
APOE ε4-carrier (yes / no)	68% / 32%
Living alone (yes / no)	34% / 66%
Education level (compulsory / higher)[b]	71% / 29 %
Age at start of treatment[a]	75.1 ± 7.0
Illness duration, years[a]	3.1 ± 2.2
MMSE[a]	21.3 ± 3.8
ADAS-cog (0-70) [a]	21.1 ± 9.0
IADL[a]	16.1 ± 5.5
PSMS[a]	7.5 ± 2.2

[a]mean ± SD; [b]Education: compulsory = 9 years or less, higher = more than 9 years

IADL – Instrumental activities of daily living scale (8 – 31)
PSMS – Physical Self–Maintenance Scale (6 – 30)
MMSE – Mini Mental State Examination (30 – 0)
ADAS-cog – Alzheimer's Disease Assessment Scale-cognitive subscale (0 – 70)

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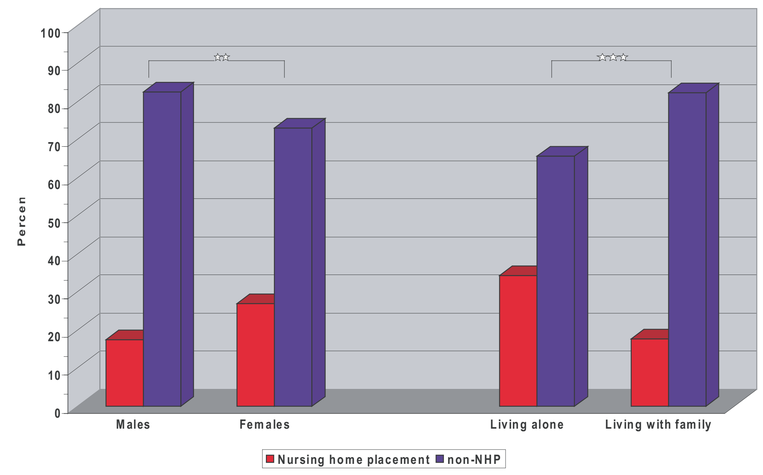
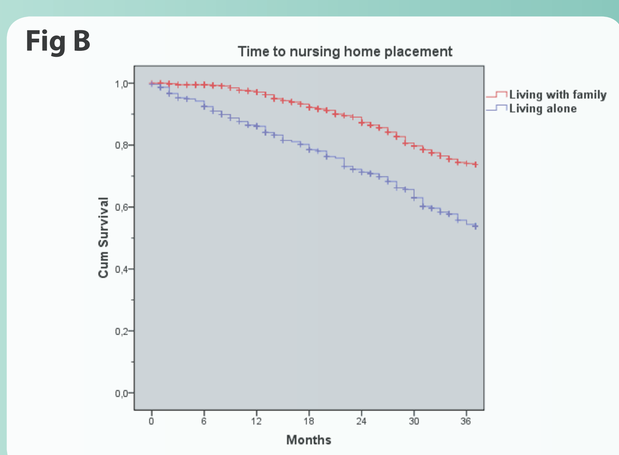
Results

Fig A Percentage of patients at baseline that were admitted to nursing homes during the study.



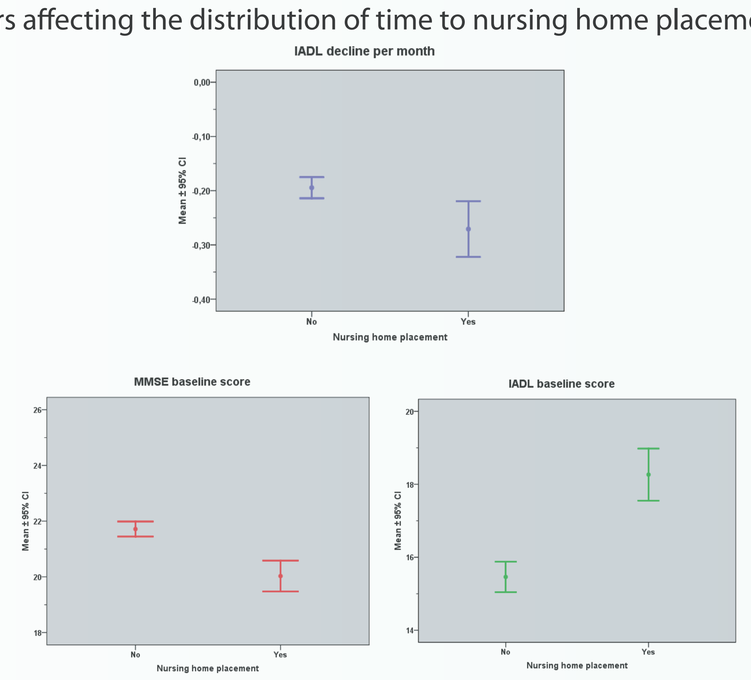
Gender and living status showed significant differences. During the study, 18% of the males and 27% of the females were admitted to NHP (p=0.002). Of the patients living alone, 34% were admitted compared to 18% of those living with their spouse or another family member (p<0.001). Level of education and APO ε4-carrier status displayed no difference regarding NHP.

Fig B



The distribution of time from start of ChEI treatment to NHP was strongly affected by solitary living (p<0.001). The other risk factors that had an impact of the amount of time to NHP were the rate of IADL change per month (p<0.001), MMSE score (p=0.019) and IADL score (p<0.001) at baseline.

Fig C Factors affecting the distribution of time to nursing home placement



Patients later admitted to NHP declined faster in instrumental ADL ability and were more cognitively and functionally impaired already at start of treatment, compared to the completers or those who withdrew for other reasons. Neither the rate of cognitive decline per month, gender, age, APOE4-carrier, level of education, illness duration nor basic ADL ability showed any significant difference between the groups.