

Plaque density, tau phosphorylation and behaviour was assessed at 12 months. **Results:** The extent of A β deposition and the accumulation of insoluble A β was significantly reduced in Tg2576/*Irs2*^{-/-} mice compared to Tg2576 controls but tau phosphorylation was significantly increased compared to both Tg2576 and *Irs2*^{-/-} animals. APP processing and soluble A β levels were not altered, but insulin degrading enzyme showed altered localisation, suggesting that reduced A β deposition may be due to increased degradation/clearance. Increased tau phosphorylation correlated with a reduction in PP2A, activity. The tau-kinase glycogen synthase kinase -3 (GSK-3) was inhibited and behavioural deficits were reversed in Tg2576/*Irs2*^{-/-} mice. **Conclusions:** Our findings demonstrate that deletion of *Irs2*^{-/-} in Tg2576 mice has divergent effects on pathological processes related to Alzheimer's disease - a reduction in plaques but an increase in tau phosphorylation - accompanied by improvement in behaviour. These findings suggest that manipulation in insulin signalling in man as a therapeutic strategy might have similarly complex effects.

TUESDAY, JULY 29, 2008
SYMPOSIA

S3-05

EMPLOYING STATE-OF-THE-ART TECHNOLOGY AND INTERVENTIONS TO IMPROVE CARE OF PERSONS WITH DEMENTIA AND TO SUPPORT CAREGIVERS

S3-05-01 EFFICACY OF BEHAVIORAL INTERVENTIONS TO IMPROVE SLEEP IN ADULT FAMILY HOMES

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Background: Community board and care facilities have become a widely accepted alternative to nursing homes for the care of cognitively impaired older adults. Sleep disturbances are widespread among demented residents of board and care homes, and are a leading cause for transfer into nursing homes. However, nothing is known about how best to treat this problem. **Methods:** This presentation will describe an ongoing randomized controlled clinical trial to evaluate the efficacy of a systematic, 4-session Sleep Education Program (SEP) for demented residents of small board and care homes who are experiencing sleep and nighttime behavioral disturbances. **Results:** To date, 24 residents in adult family homes (AFHs) have been randomized into SEP or usual care control. Residents are 52% male, 100% Caucasian, and a mean age of 85.5 (range 64-101 years). Caregivers are 95% female, 24% Caucasian, with a mean age of 44 .1 (range 25-61 years). At baseline, residents were mildly depressed (mean Cornell score = 9.2, range 2 - 17), and had a cognitive level consistent with severe dementia (mean MMSE = 8.0, range 0-23). Their average nighttime sleep percent based on wrist actigraphy was 77.5% (range 19 - 99%), and residents spent an average of 5.3 hours either asleep or being inactive during the day (range <1 - 13 hours/day). In this paper, we will discuss some of the challenges faced implementing SEP in the AFH setting. The impact of resident factors (such as medical and psychiatric morbidity, incontinence, or pain) and facility factors (such as ambient light levels, staff scheduling, and sleep/wake routines) that precipitate and perpetuate sleep problems in AFH residents will also be described. **Conclusions:** Identification of behavioral strategies that could be used as part of a staff educational program to manage sleep and nighttime behavior problems would help residents remain in a less restrictive environment for a longer time, and enhance resident quality of life.

S3-05-03 FITNESS TO DRIVE IN EARLY STAGE DEMENTIA: AN INSTRUMENTED VEHICLE STUDY

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Background: Driving presents a significant safety issue for persons with dementia. **Methods:** Actual driving data will be used to identify and report

problematic driving performance to drivers, their families, and therapists in order to supplement traditional assessments of fitness to drive. An expert panel and focus groups were used to determine which driving behaviors to monitor. **Results:** Based on the results a set of behaviors were developed that are able to be measured objectively through instrumentation and are relevant to dementia and driving. Metrics for measuring these behaviors were developed. **Conclusions:** The results of Phase I were met, and in some areas, surpassed the expected outcomes. That is, behaviors were identified that could be measured through instrumentation. The goals of Phase II are to demonstrate the feasibility of using in-vehicle data collection to monitor driving actions of persons with early-stage dementia; and compare the validity of multiple forms of assessment of driving skills with naturalistic driving in persons with early stage-dementia.

S3-05-04 TECHNOLOGY IN THE HANDS OF PEOPLE WITH MILD STAGE DEMENTIA

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Background: Recent literature shares some recommendations when assistive technology is used to support people with dementia; for example, the possibility of individual adaptation, the user's motivation, and the environment's interest, knowledge and support. Modern, everyday technology offers great opportunities to simplify daily life through personal computers, telephones, etc. However, our knowledge of the needs and prerequisites of older adults with MCI or mild stage dementia with regard to technology are utterly limited. The aim of this research is to develop knowledge about people with MCI or mild dementia as users of technology (both assistive and everyday technology), and the usability of technology for them. **Methods:** Two standardized assessment instruments have been developed to assess a/ overall, perceived competence in technology use, and b/ specific skills in older adults' management of everyday technology, and data have been collected to compare people with and without cognitive impairment. Qualitative in-depth studies have been performed using interviews and participant observations in the daily lives of people with early stage dementia. **Results:** Our results indicate that people with mild stage dementia may still highly value everyday technology, although their overall use of technology has decreased and problems are common. Technology may have practical and existential meaning to them, as it may assist them in various ways in daily life as well as support their perception and presentation of themselves. From the instrument data, a preliminary hierarchy of technologies has been created, based on the perceived difficulty of the technologies. **Conclusions:** To enable continued use, it is essential that the technology is individually significant to the user and incorporated in a bodily experience through very frequent practice. Our studies suggest that home modifications with assistive technology should more actively involve cognitively disabled clients, as they need time and guidance in learning how to use it - although the technology may be meant to be invisible. The importance of follow-up of technological support to people with dementia is emphasized. The experiences of people with dementia as users of technology should be used to guide adaptation, design and development of products and services.

S3-05-05 USING PERSONAL COMPUTERS TO EXTEND IMPACTS OF A CAREGIVING INTERVENTION

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Background: To ameliorate negative impacts of caregiving and enhance family members' ability to maintain the caregiving role, some effective short-term psycho-social interventions have been developed. However, little attention has been given to developing cost-effective strategies to maintain or enhance the positive impact of these interventions over time. The unique features of computer-mediated communication suggest that it has potential to achieve these goals. **Methods:** To test this proposition, we