technical requirements, and they are also time-consuming. Some simple and sensitive instruments should be developed for easily applying in clinical assessment. **Results:** At present, in order to temporarily relieve patients from cognitive decline resulting from Alzheimer's disease, clinicians treat the symptom of Alzheimer's Disease in various methods, such as acetylcholinesterase inhibitors, anti-immune inflammatory response drugs, estrogen replacement, anti-oxidants, and calcium channel blocker. In addition, these are psycho-social interventions and environmental-behavioral therapy. In recent years, some drugs aim at the etiology of Alzheimer's Disease, such as β-hydrolase, γ-hydrolase enzyme inhibitors, Aβ immunization and transit metal chelate complexes, which are based on some basic studies on molecular biology and cytology. **Conclusions:** Because Alzheimer's disease is still irreversible, 72.7% patients with Alzheimer's Disease need to be taken care by other people. In China, family caregiving is currently the main care model, but it is not a formal care model and has been unable to meet demand. Because family caregiving is non-professional and without support from the society or governmental policy, caregivers are under the stresses of economic, physical, time, life, and psychological pressure for many years. At meantime, their own developments are badly affected. That is the reason why the social care should be strengthened. In China the social care for Alzheimer's Disease is very lacking, therefore a social care system is widely needed to be formed at present.

S3-01-05 INFORMAL CAREGIVING FOR OLDER ADULTS WITH DEMENTIA: ECONOMIC AND HEALTH IMPLICATIONS

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Background: Informal caregiving (unpaid help with daily activities provided by family and friends) accounts for the majority of care provided to older adults with dementia. This care represents a significant societal economic cost that is often not considered when evaluating the overall societal impact of Alzheimer's disease and other dementias. There are also potential negative and positive health effects for the caregiver of providing care to a person with dementia or other chronic diseases of aging. **Objective:** To determine the caregiving time and economic cost associated with informal care for dementia, and to identify potential negative and positive caregiver health effects associated with caregiving. **Methods:** We used data from the Health and Retirement Study (HRS), a nationally representative population-based longitudinal survey of about 20,000 U.S. adults, and the Aging, Demographics, and Memory Study (ADAMS), a sub-study of the HRS focused on cognitive impairment and dementia. We determined caregiving time for dementia and other chronic diseases. We also assessed mortality over 7 years of follow-up for caregivers and non-caregivers. **Results:** Informal caregiving for cognitive impairment and dementia accounted for the largest share of informal care for older adults with chronic disease and functional limitations in the United States, and represented a societal economic cost of more than $18 billion per year. Providing care for 14 hours per week or more was associated with decreased mortality among caregivers, suggesting that provision of care that does not lead to significant physical or emotional caregiver strain may be associated with health benefits for caregivers. **Conclusions:** Informal care for dementia represents a significant societal economic cost, and likely accounts for the largest share of informal care for older adults with chronic disease. The health effects for caregivers of providing care are likely complex, with the possibility for both negative and positive health outcomes associated with the provision of care.

S3-01-06 TRANSLATING POLICY AND PRACTICE: LEARNING BETWEEN MORE DEVELOPED AND LESS DEVELOPED REGIONS

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Background: Historically dementia has been an issue for more developed regions. Few people in less developed regions lived into older age and, therefore, there were few people with dementia. Consequently, most current knowledge about dementia is Western. Figures now show that populations in less developed regions are ageing faster than other parts of the world and this is expected to lead to a dramatic increase in the incidence of dementia in these regions. There is a growing need in less developed regions for care and support for people with dementia and a policy framework to support this. Kerala, a state in the south of India, is often seen as demographically advanced in comparison with other areas of India making it an interesting case study. The Alzheimer's and Related Disorders Society of India (ARDSI) was founded in Kerala and provides services, mainly home care and day care. To develop these services key actors within ARDSI travelled widely to gain knowledge and experience of dementia care in other countries, particularly Western, English speaking countries such as the UK. **Methods:** This paper reflects on the learning and transfer processes that took place and reports on research conducted by the author which compared new services in Kerala with established services in the UK. The research was qualitative in nature and involved in-depth interviews with key actors and care staff in the UK and Kerala as well as observation in day centres in the two locations. **Results:** The data analysis showed significant similarities and differences between the two countries relating to the translation and learning processes that had taken place. The results indicated that learning took place from the UK to Kerala although information about policy and practice was altered by the local culture in Kerala. **Conclusions:** Translation does take place between different countries but it is more complex than just simply copying ideas from one place to another. Ideas and information are altered by the translation processes and by the cultures of the two countries involved.

TUESDAY, JULY 14, 2009
SYMPOSIA
S3-02
ANIMAL AND CELLULAR MODELS

S3-02-01 ROLE OF PYRO-GLU ABETA IN AD

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Background: *Post mortem* analysis of brain samples from demented and non-demented persons with pathological aging revealed that the plaque load is almost equal in both groups. Moreover, neither BACE-1, Neprylisin, oxidative state nor Aβ(1-42) seem to correlate with the neuropsychiatric symptoms of the Alzheimer's patient group. Correspondingly, mice expressing human wildtype APP do not show deposits or plaque-like histopathology, but develop memory impairment and synaptic loss similar to mutant APP-expressing mice, which primarily deposit Aβ(1-40/42). Similar, newly designed animal models display N-terminal Aβ heterogeneity as found in human sporadic AD and memory deficits long before extracellular deposits are detectable. These results support the notion that intraneuronal toxicity of Aβ-peptides initiates neurodegeneration. **Methods:** Investigating the aggregation propensity and seeding capacity of several pGlu Aβ peptides we applied different biophysical methods among them CD, electron microscopy and fluorescence-based kinetic assays. Cellbiological analysis has been performed in HEK, U343, LNZ and neuroblastoma cells. Animal studies have been conducted using tg2576, TASD-41 and wild type mice as well as new transgenic mice e.g. expressing under the THY-1 promoter and a neuropeptide pre(pro)sequence the message of AβGlu(3-42). Studies have been performed between 3 and 10 months treatment with inhibitors of Glutaminyl Cyclase. Standard behavioral studies and post mortem immune histochemical analysis was performed. **Results:** In search of Aβ-peptides most prone to form toxic oligomers, we found that Aβ-peptides possessing a N-terminal pyroglutamic acid (pGlu) aggregate two orders of magnitude faster as compared to Aβ(1-42). In addition, pGlu-peptides are potent seeds of Aβ(1-42) oligomerization. Our *in vitro* and *in vivo* studies provide strong evidence for a slow Glutaminyl cyclase (QC, EC 2.3.2.5) catalyzed cyclization of N-terminal glutamic acid, substantiating a crucial role for generation of pGlu-Aβ peptides. Characterization of QC catalysis cyclizing both glutaminyl and glutamyl residues revealed similar catalytic proficiency of QCs for the different substrates. Consequently, the formation of pGlu-Aβ can be suppressed by QC inhibitors *in vitro* and *in vivo*. This