Quinhua Zhao - selected references

1 Zhao, Q., Zhou, B., Ding, D., Teramukai, S., Guo, Q., Fukushima, M. et al. (2014). Cognitive decline in patients with Alzheimer's disease and its related factors in a memory clinic setting, Shanghai, China. *PLoS.ONE., 9,* e95755.
Notes: OBJECTIVES: Progressive cognitive decline is a characteristic hallmark of AD. It is important to identify prognostic markers to improve patient care and long-term planning. We aimed to identify the characteristics of disease progression in AD patients, focusing on cognitive decline and its related factors. METHODS: Clinically diagnosed AD patients in a memory clinic were followed. The mini-mental state examination (MMSE) and a battery of other neuropsychological tests were performed to assess the rate of cognitive decline and to analyze the related factors. RESULTS: A total of 165 AD patients were analyzed for cognitive changes. The MMSE scores declined at a rate of 1.52 points per year. Most neuropsychological test scores deteriorated significantly over time. Younger and early-onset AD patients deteriorated more rapidly than older and late-onset patients in global cognition and executive function. Men declined faster in memory but slower in attention than women. Higher education was associated with more rapid deterioration in visuo-spatial ability. Family history, hypertension and cerebral vascular disease were also associated with disease progression. CONCLUSION: Attention, executive and visuo-spatial functions deteriorate at faster rates than other cognitive functions in AD patients. Age and age at onset were the main factors that associated with deterioration

2 Zhao, Q., Guo, Q., & Hong, Z. (2013). Clustering and switching during a semantic verbal fluency test contribute to differential diagnosis of cognitive impairment. *Neurosci.Bull., 29,* 75-82.
Notes: The verbal fluency test (VFT) can be dissociated into "clustering" (generating words within subcategories) and "switching" (shifting between clusters), which may be valuable in differential diagnosis. In the current study, we investigated the validity of VFT in the differential diagnosis of Alzheimer's disease (AD, n = 65), vascular dementia (VaD, n = 65), mild cognitive impairment (MCI, n = 92), and vascular cognitive impairment without dementia (VCIND, n = 76) relative to cognitively normal senior controls (NC, n = 374). We found that in the NC group, the total correct score was significantly correlated with age and education; males generated more subcategories; cluster size increased with education, and subcategory and switching decreased with age. A significantly progressive advantage was observed in VFT scores in the sequence NC > MCI/VCIND > AD/VaD, and this significantly discriminated dementia patients from the other groups. AD patients performed better in all four VFT scores than VaD patients. Subcategory and switching scores significantly distinguished AD from VaD patients (AD > VaD; mean difference, 0.50 for subcategory, P <0.05; 0.71 for switching, P <0.05). MCI patients scored higher than VCIND patients, but the difference did not reach statistical significance. These results suggest that semantic VFT is useful for the detection of MCI and VCIND, and in the differential diagnosis of cognitive impairment

3 Zhao, Q., Lv, Y., Zhou, Y., Hong, Z., & Guo, Q. (2012). Short-term delayed recall of auditory verbal learning test is equivalent to long-term delayed recall for identifying amnestic mild cognitive impairment. *PLoS.ONE., 7,* e51157.
Notes: Delayed recall of words in a verbal learning test is a sensitive measure for the diagnosis of amnestic mild cognitive impairment (aMCI) and early Alzheimer's disease (AD). The relative validity of different retention intervals of delayed recall has not been well characterized. Using the Auditory Verbal Learning Test-Huashan version, we compared the differentiating value of short-term delayed recall (AVL-SR, that is, a 3- to 5-minute delay time) and long-term delayed recall (AVL-LR, that is, a 20-minute delay time) in distinguishing patients with aMCI (n = 897) and mild AD (n = 530) from the healthy elderly (n = 1215). In patients with aMCI, the correlation between AVL-SR and AVL-LR was very high (r = 0.94), and the difference between the two indicators was less than 0.5 points. There was no difference between AVL-SR and AVL-LR in the frequency of zero scores. In the receiver operating characteristic curves analysis, although the area under the curve (AUC) of AVL-SR and AVL-LR for diagnosing aMCI was significantly

different, the cut-off scores of the two indicators were identical. In the subgroup of ages 80 to 89, the AUC of the two indicators showed no significant difference. Therefore, we concluded that AVL-SR could substitute for AVL-LR in identifying aMCI, especially for the oldest patients

4 Mortimer, J. A., Ding, D., Borenstein, A. R., DeCarli, C., Guo, Q., Wu, Y. et al. (2012). Changes in brain volume and cognition in a randomized trial of exercise and social interaction in a community-based sample of non-demented Chinese elders. *Journal of Alzheimers Disease, 30,* 757-766.
Notes: Physical exercise has been shown to increase brain volume and improve cognition in randomized trials of non-demented elderly. Although greater social engagement was found to reduce dementia risk in observational studies, randomized trials of social interventions have not been reported. A representative sample of 120 elderly from Shanghai, China was randomized to four groups (Tai Chi, Walking, Social Interaction, No Intervention) for 40 weeks. Two MRIs were obtained, one before the intervention period, the other after. A neuropsychological battery was administered at baseline, 20 weeks, and 40 weeks. Comparison of changes in brain volumes in intervention groups with the No Intervention group were assessed by t-tests. Time-intervention group interactions for neuropsychological measures were evaluated with repeated-measures mixed models. Compared to the No Intervention group, significant increases in brain volume were seen in the Tai Chi and Social Intervention groups ($p < 0.05$). Improvements also were observed in several neuropsychological measures in the Tai Chi group, including the Mattis Dementia Rating Scale score ($p = 0.004$), the Trailmaking Test A ($p = 0.002$) and B ($p = 0.0002$), the Auditory Verbal Learning Test ($p = 0.009$), and verbal fluency for animals ($p = 0.01$). The Social Interaction group showed improvement on some, but fewer neuropsychological indices. No differences were observed between the Walking and No Intervention groups. The findings differ from previous clinical trials in showing increases in brain volume and improvements in cognition with a largely non-aerobic exercise (Tai Chi). In addition, intellectual stimulation through social interaction was associated with increases in brain volume as well as with some cognitive improvements

5 Zhao, Q., Zhou, B., Ding, D., Guo, Q., & Hong, Z. (2010). Prevalence, mortality, and predictive factors on survival of dementia in Shanghai, China. *Alzheimer Disease and Associated Disorders, 24,* 151-158.
Notes: BACKGROUND: Despite rapid development of epidemiology in dementia, reported prevalence in Asia varies among studies and differs from that of Western countries. Few reported the mortality and predictive factors on survival of dementia in Asia, especially China. METHODS: To characterize the epidemiologic pattern of dementia in Shanghai, China, including prevalence and survival, we conducted a cross-sectional, population-based survey among Shanghai residents (> or =55 y) and followed a subsample for up to 40 months for survival analysis. A stratified, multistage cluster sampling design was adopted. RESULTS: Crude and age-standardized prevalence of dementia was 2.99% and 2.66%, respectively, higher in women and increased with age. Prevalence of Alzheimer was higher than vascular dementia. Furthermore, Alzheimer disease was more prevalent in rural areas than in urban, whereas geographic distribution of vascular dementia was quite the opposite. Crude and age-standardized mortality of dementia was 6.06 and 5.30 per 1000 person-years. There was a striking difference in survival between the demented and nondemented, whereas no significant survival discrepancy existed between Alzheimer and vascular dementia. Factors including overall physical and cognitive function, age, and severity of disease strongly influenced survival and might be predictors for fatal events in dementia patients. CONCLUSIONS: The epidemiologic pattern of dementia in Shanghai, China is similar to that of western countries.