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References

Fukuda, Y., Nakao, H., Yahata, Y. and Imai, H. (2008). In-depth descriptive analysis of trends in prevalence of long-term care in Japan. *Geriatric Gerontology International*, 8, 166–171.

Jorm, A. F., Christensen, H. and Griffiths, K. M. (2006). The public's ability to recognize mental disorders and their beliefs about treatment: changes in Australia over 8 years. *Australian and New Zealand Journal of Psychiatry*, 40, 36–41.

Schomerus, G., Matschinger, H., Kenzin, D., Breier, P. and Angermeyer, M. C. (2006). Public attitudes towards mental patients: a comparison between Novosibirsk, Bratislava and German cities. *European Psychiatry*, 21, 436–441.

Tanaka, G., Inadomi, H., Kikuchi, Y. and Ohta, Y. (2004) Evaluating stigma against mental disorder and related factors. *Psychiatry Clinical Neuroscience*, 58, 558–566.

Umegaki, H., Onishi, J., Suzuki, Y., Endo, H. and Iguchi, A. (2007). Attitudes toward disclosing the diagnosis of dementia in Japan. *International Psychogeriatrics*, 19, 253–265.

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Is hypertension a predictor of hippocampal atrophy in Alzheimer's disease?

Hypertension affects millions of people worldwide and has been reported in patients with Alzheimer's disease (AD) some decades before the onset of the disease. High blood pressure has also been related to pathological manifestations of AD (Skoog and Gustafson, 2006). The hippocampus is a highly vulnerable and plastic structure that gets damaged by stimuli, e.g. hypoxia. In order to establish whether hypertension could damage the hippocampus and play a role in its atrophy we undertook a study to examine the relationship between hypertension and hippocampal atrophy in patients with AD.

A total of 32 patients fulfilling Neurological and Communicative Diseases and Stroke Alzheimer's Disease and Related Disorders (NINCDS-ARDA) Diagnostic Criteria for AD (M/F = 27/5, age range = 61–84 years, mean = 74.28 ± 5.8), with Mini-mental State Examination scores of 12.44 ± 6.6 (Stage I = 4, II = 22, III = 10) were included in the study. Mean duration of AD onset was 4.66 ± 2.6 years. Secondary causes of dementia were excluded by appropriate investigations. Delineation of entire hippocampal formation was done using the National Institutes of Health *Image* program (available at http://rsb.info.nih.gov/nih-image/).

Hypertension (defined as blood pressure equal or greater than 140/90) was present in 24 out of the 32 patients (75%) and atrophy of hippocampus was seen in 15 (46.8%) out of the 32 patients. In all except one, atrophy was associated with hypertension. Family history and history of head injury was present in two cases each (12.5%), and nine cases were diabetic (28.1%). Six patients (18.75%) had a history of coronary artery disease, and 15 (46.8%) had behavioral and psychological symptoms of dementia. Twenty patients were graduates, six (18.75%) illiterate and another six (18.75%) were postgraduates. There was no history of trauma or epileptic fits in any of them.

Hipppcampal atrophy is an important milestone in AD. Studies indicate that atrophy of this region correlates well with cognitive decline in AD patients (den Heijer *et al.*, 2005). We have previously reported hippocampal atrophy as a seizure predictor (Dhikav and Anand, 2007), and a large study of over 500 subjects with no dementia showed that blood pressure and indicators of small-vessel disease in the brain may be associated with the atrophy of structures affected by AD pathology (Yavuz *et al.*, 2006).

The study by Wiseman *et al.* (2004) involving 103 hypertensive patients showed an adverse influence of hypertension on brain structures. Although patients in the present study had more factors that could potentially contribute to hippocampal atrophy, hypertension is the main one. The mechanism by which hypertension could be contributing towards atrophy of hippocampus is unknown, but we assume that hypo-perfusion and hypoxia of the hippocampus may be involved. If

this assumption is correct, it would be interesting to investigate the extent to which hypertension contributes to atrophy, increases the likelihood of conversion from mild cognitive impairment to full-blown AD, or complicates the course of established AD. In line with this assumption, it is important that some observational studies have reported that use of antihypertensives decreases the risk of AD (Skoog and Gustafson, 2006). If hypertension is proven to be a significant predictor of hippocampal atrophy, then both primary and secondary prevention of AD could be achieved with anti-hypertentive drugs. A large comparative study involving AD patients with hypertension and hippocampal atrophy and those with no atrophy needs to be undertaken to establish this association further.

References

den Heijer, T. *et al.* (2005). Association between blood pressure, white matter lesions, and atrophy of the medial temporal lobe. *Neurology*, 64, 263–267.

Dhikav, V. and Anand, K. (2007). Hippocampal atrophy may be a predictor of seizures in Alzheimer's disease. *Medical Hypotheses*, 69, 234–235.

Skoog, I. and Gustafson, D. (2006). Update on hypertension and Alzheimer's disease. *Neurology Research*, 28, 605–611.

Wiseman, R. M., Saxby, B. K., Burton, E. J., Barber, R., Ford, G. A. and O'Brien, J. T. (2004). Hippocampal atrophy, whole brain volume, and white matter lesions in older hypertensive subjects. *Neurology*, 63, 1892–1897.

Yavuz, B. B. *et al.* (2007). Hippocampal atrophy correlates with the severity of cognitive decline. *International Psychogeriatrics*, 19, 767–777.

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Physical assault by aggressive older adults

Aggressive and violent behavior is a problem throughout healthcare services (Behar *et al.*, 2008). The incidence of such acts is known to be over two and half times greater in mental health settings than in general hospital environments (National Audit Office, 2003). All types of aggression may have negative physical and psychological consequences for the victim, and therefore none ought not to be overlooked. However, one particularly serious feature is physical assault, which may result in a physical injury to the victim, although reported levels are relatively low (Stubbs *et al.*, 2009). Physical assault may also affect the psychological, emotional and spiritual well-being of health staff and a minority may go on to develop post-traumatic stress type symptoms (Needham *et al.*, 2005). Indeed, these symptoms may last longer than the original physical injury itself (Needham *et al.*, 2005).

Those working outside older adult psychiatry may underestimate the challenging nature of this population. This is despite recent confirmation that such patients are very capable of displaying high frequency and severe levels of aggression (Stewart *et al.*, 2008). Little accurate information is available in relation to the nature and outcome of assault among these patients and their care staff, and it is therefore difficult to develop aggression training programs that reflect the relative risks for those caring for older adult psychiatric inpatients.

The Townsend Division of St Andrews Healthcare in the U.K. has an international reputation as a leading psychiatric service for older adults with a history of challenging and offending behaviors. There are over 90 beds across five wards. Staff routinely record all incidents of injurious assault on official hospital accident and incident forms. A retrospective audit was conducted of these forms between March and August 2008 to ascertain official levels of assault and any subsequent injuries to healthcare staff.

In this six-month period, there were 179 recorded assaults (monthly mean = 30, range 8–38). Of these, 102 (57%) resulted in physical injury to staff and 21 (12%) to patients. Four assaults (2%) resulted in injuries to a member of staff which prevented them from remaining on duty. The sites of these injurious and non-injurious assaults varied greatly (see Table 1), though arm injuries to staff were reported to be most common (n = 41; 23%). Arms were also the commonest target in assaults that did not cause injury (n = 14; 18%), probably because staff use their arms to block oncoming assaults and to apply physical restraint techniques. Head, face and neck injuries were also common sites of assault both for staff injuries (n = 27; 26%) and patient injuries (n = 12; 57%). Pinching and/or scratching the arms of healthcare staff (37%) was by far the most common type of injurious assault, with