S12.3
Subcortical vascular dementia: cerebrospinal fluid determinations

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Subcortical vascular dementia (SVD) may be the most common form of vascular dementia. The pathological substrate associated with SVD appears to be degeneration of the white matter and vessel wall damage in the long penetrating vessels. Hitherto, only few investigations have studied the neurochemical changes in SVD. Most of them have investigated the levels of structural proteins in the cerebrospinal fluid (CSF). Changes in these proteins may reflect pathophysiological mechanisms and may also serve as markers in the clinical differentiation between VAD and Alzheimer's disease. Potential CSF biochemical markers for SVD include the CSF/serum albumin ratio (for identification of blood-brain barrier damage related to disturbances in the small intracerebral vessels) and the following proteins: CSF sulfatide (for identification of ongoing demyelination related to white-matter changes and CSF neuron-specific enolase (NSE), CSF tau and CSF neurofilament light protein (NFL) (for identification of ongoing neuronal [NSE] and axonal [tau and NFL] degeneration). Changes in these proteins are related to stroke incidents and presence of white-matter changes on CT or MRI of the brain. The use of information gained from analyses of several CSF biochemical markers, together with that gained from clinical examination and brain-imaging (single-photon emission tomography, CT/MRI), may increase the accuracy of the clinical diagnosis of SVD.

S12.4
Subcortical vascular dementia: pathophysiology and experimental models

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The main pathological correlates of subcortical vascular dementia are lacunar infarcts and white matter changes. Both lesion types are thought to be linked with cerebral small vessel alterations caused by aging, hypertension, diabetes mellitus, and other as yet unknown factors. While the pathogenesis of lacunar infarcts is considered quite established, that of white matter changes is less clear. Small vessel disease may lead to ischemia, loss of autoregulation, blood-brain barrier alterations, and tissue edema. The type of ischemia thought to be responsible of white matter changes could be a subliminal one caused by brief and repeated insults or by prolonged but moderate cerebral oligemia.

Experimental models may help to elucidate pathophysiological mechanisms of white matter ischemia and to clarify the pathogenesis of subcortical vascular dementia. In a rat model of permanent middle cerebral artery occlusion we demonstrated that oligodendrocytes are highly vulnerable to ischemia. In a second rat model of chronic cerebral hypoperfusion (bilateral carotid artery ligation) we found cognitive changes suggestive of frontal-subcortical circuit damage. Further experimental work should clarify whether short and repeated ischemic insults can produce white matter changes and the biochemistry of white matter ischemia.

S12.5
Subcortical vascular dementia. Therapeutic issues

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Several drugs have shown mild symptomatic effects in controlled clinical trials on vascular dementia (VD), but case selection, diagnostic criteria, duration of treatment or efficacy variables were poorly strict. The unsatisfactory results of drug trials on VD may be partly due to the heterogeneity of this entity, and a more homogeneous group of patients is needed. Subcortical Vascular Dementia (SVD) is the most frequent form of VD, with a well defined clinical picture, natural history, neuroimaging and pathological substrate, and is expected to show a more predictable treatment response.

A preliminary open trial and a post-hoc analysis of a double-blind trial of the calcioantagonist nimodipine, and a double-blind trial of the non competitive antagonist of the N-methil-D-aspartate receptor memantine have shown a positive effect on cognitive performances in SVD patients. In these two controlled trials the effect on multi-infarct VD was lower. Several clinical trials with anticholinesterasic and some other drugs for SVD are now in course and we can expect positive results in the next years. Guidelines about clinical criteria, outcome variables and neuropsychological and functional measures are needed.

S13. Job stress related depression – a challenge for modern psychiatry?

Chairs: L. Levi (S), M. Åsberg (S)

S13.1
The relationship between workplace characteristics and health: a comprehensive meta-analysis

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The potential for employment practices and conditions to impact adversely on employee stress and health has been explored extensively. However, the amount of research published in this area is large and often contradictory. A comprehensive review of the essential issues was clearly needed to enable practice is to keep pace with developments in the literature.

A systematic review and meta-analysis will be presented, examining the existing research into the relationships between mental / physical well being and the work characteristics job control, job security, job satisfaction, working hours and management style. The systematic review covered over 2,000 related papers; such a review on this scale has never previously been attempted. The resulting meta-analysis was based on effect-size statistics extracted from approximately 800 appropriate studies.

Of the five work factors investigated, job satisfaction was found to correlate most strongly with health; particularly strong adverse relationships were found for burnout, depression, anxiety and self-esteem. Weaker, but still compelling, negative associations were found between levels of employee well-being and each of supervisor support, job control and job security. Supervisor support and job control were both particularly strongly related to symptoms of burnout (mental exhaustion), whereas job security appeared to be linked with an increased risk of the psychiatric disorders of anxiety and depression. The overall correlation found between health and working hours was numerically much smaller but statistically significant.

The occupational health implications of these findings will be discussed.

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