Dementia of Frontal Type

Prof. Arne Brun, MD, PhD, Department of Pathology, Division of Neuropathology, University Hospital, S-221 85 Lund (Sweden)

Guest Editor,

During the last 10 years, dementia of frontal lobe type has been recognized as a variant of progressive dementia. A number of disorders affecting the frontal lobes, either primarily or secondarily, are known to cause progressive behavioural dysfunction and eventually produce full dementia.

A congress highlighting this theme, held in Lund, Sweden 1986, defined a form of presenile dementia with primary degenerative involvement of the frontal cortex. A second congress on frontal dementia was held in the same city in 1992. The second conference was arranged by the Dementia Study Group, University of Lund, Sweden in collaboration with the French Foundation for Alzheimer Research (Los Angeles, Calif., USA) and sponsored, in part, also by the Crafoord Foundation (Lund, Sweden), and contributions to this meeting are featured in this issue of *Dementia*.

In the past, frontal dementia has been synonymous with Pick's disease, a progressive degenerative disorder involving the frontal and temporal cortex. To this can be added frontal dementia of non-Alzheimer type (FLD), a relatively common problem, plus a progressive language dysfunction with frontal lobe atrophy with the same pathology as FLD and

also a frontal dementing syndrome lacking distinct histopathology. Presenile dementia associated with motor neuron disease represents yet another disorder that can produce frontal cortical pathology. These entities form a group of disorders that are related with respect to the cortical site of structural change. Other disorders with more widespread pathological background can also produce 'frontal' symptomatology; these form a group of secondary frontal dementias. A variety of degenerative vascular, toxic and infectious disorders, all apparently involving subcortical structures with strong frontal connections, can be included in this 'secondary' group. Here the subcortical

abnormalities appear to be the source of 'frontal system disorders' •

Among the *primary cortical disorders*, the largest single group are those with FLD. Pathoanatomically, these cases show degeneration of the superficial layers of the frontal and anterior temporal cortex with mild gliosis and microvacuolation, but have neither Pick nor Alzheimer core changes. FLD is markedly familial but, to date, genetic linkage has not demonstrated the site of the abnormal gene. The possibility of a prion abnormality has neither been validated nor disproved in FLD or Pick's disease.

Regional brain isotope studies (SPECT, PET and rCBF) verify the frontal malfunction. One series has suggested greater right hemisphere involvement, an asymmetry noted in both FLD and Pick's disease. The progressive nature of FLD has been shown by serial blood flow measurements performed over several years. The degree of cognitive impairment parallels the reduction in cerebral blood flow in fronto-temporal areas, and both are consistent with the pathological findings. Behavioural activation of FLD patients produced augmentation of flow in the frontal areas but not to the level of normality. Recognition of frontal degenerative disorders is important for research in other dementing diseases, including Alzheimer's disease, where the frontal dementias may be an important confounding factor. The effects of ageing and of the disorders that accompany ageing demand attention when judging the cognitive impairments and the blood flow decline in FLD. Hopefully, future investigations will throw light on the nature of the degenerative frontal lobe dementias with respect to their nature and etiology, making a more precise classification possible and paving the way for future treatment.