The Brain Disease of Ageing - 
Epidemiology and Risk Factors of Senile Dementia (Alzheimer) *

H. Häfner

Head, 
Central Institute of Mental Health 
P.O. Box 12 21 20 
D-6800 Mannheim 1, F.R.G.

INTRODUCTION

With his description of a case of severe senile dementia of early onset in 1907, Alois Alzheimer (1907a,b) gave an account of the disease which is still valid today: the clinical aspects of a progressive loss of cognitive, mnemonic and language functions and the neuropathological aspect of a degeneration of ganglia and an agglomeration of neurofibrillary tangles and plaques in the cerebral cortex and in the hippocampus. The establishment of an exact diagnosis of dementia of Alzheimer's type still requires positive findings in both clinical and neuropathological fields. The latter can hardly be obtained from population studies. Peripheral markers which would allow to make a correct diagnosis are not yet at our disposal.

PREVALENCE OF DEMENTIA IN LATER LIFE

The epidemiological assessment of Alzheimer's disease is therefore currently based on two different approaches:

First, the assessment of all cases of late-life dementia in a defined population including hospital and nursing home cases and the subsequent estimation of the share of Alzheimer's disease on the basis of neuropathological reference data. These are still founded on the findings of Tomlinson et al. (1970, 1976): primary dementia 53 %, vascular dementia 17 %, mixed types of primary and vascular dementia 16 % and the rest representing secondary dementia of different etiology (Fig. 1).

In a prospective clinical and neuropathological study Mölsä et al. (1985) have essentially confirmed these findings. The method of estimating the proportions has some disadvantages. It does not allow individual case identification and, in addition, the reference data come from only a few European countries, whereas the relative prevalence of Alzheimer and vascular dementia seems to vary across countries.

* I am grateful to Dr. Horst Bickel for valuable suggestions and to Prof. Brian Cooper - both at the Central Institute of Mental Health - for the permission to reproduce figures and to use partly unpublished data.
The second approach constitutes the identification of cases of Alzheimer's disease on the basis of clearly defined clinical criteria such as the NINCDS (McKhann et al. 1984), the DSM III R or ICD 10 research criteria. The most carefully elaborated and frequently used instruments comprising operationalized clinical criteria are the Ischaemic score of Hachinski et al. (1975), CAMDEX (Roth et al. 1986), and GMS-Agecat (Copeland et al. 1987).

The overall efficiency of these instruments, insofar as they have been validated by neuropathological findings, is still limited with values of about 80% (Sulkava et al. 1983, Tierney et al. 1988).

Cases of dementia in later life usually begin with slight cognitive deficits, which cannot be clearly distinguished from psycho-organic syndromes of different etiology and from forgetfulness in old age. Reliable epidemiological data therefore refer to moderate and severe dementias, which are defined by significant cognitive deficits affecting the ability for self-care and which can thus be rather precisely diagnosed.

Table 1 presents the results of 15 virtually comparable population studies. In the ten countries referred to, the prevalence rates for severe or moderately severe dementia vary between 3% and 8% of the population aged 65 and over with a mean value of approximately 5%. The high variability of the rates for mild dementia or psycho-organic syndromes from 1.5% to 52.7% reflects the difficulties of case identification mentioned and the different diagnostic procedures used.