

Down's Syndrome and Alzheimer's Disease

Service planners need to be aware of trends in prevalence of Alzheimer's disease in people with Down's syndrome. As the degree of dementia increases, support needs also increase. With increasing life expectancy of people with Down's syndrome, more will live long enough to be at increased risk of dementia.

Average life expectancy of people with Down's syndrome has increased this century.

1929	9 years
1947	12-15 years
1961	18.3 years

Table 1
Life expectancy of people with Down's syndrome

Many children with Down's syndrome died in their early years from heart and intestinal disorders. As medical interventions were applied, life expectancy rose.

Survival of people with Down's Syndrome, after the first year of life, plateaus up to the age of 44 years. After this age there is a marked drop in survival.

Alive at:	%
44 years	68
60 years	44
68	13

Table 2
Survival of liveborn children with Down's syndrome

Life expectancy does not differ significantly according to the sex of the person with Down's syndrome at any age.

People with Down's syndrome now aged 44 years were born in 1950. As life expectancy continued to rise after 1950 there will be an increase over coming years of people reaching the age when risk of dementia is much increased.

Between 1995 and 2005 the number of people with Down's syndrome over the age of 40 years is estimated to increase by about a third and the number over 50 years by about three times. In the five years from 1995 to 2000 the numbers over 50 years will probably double.

Down's syndrome is a genetic disorder involving an excess of chromosome 21 (trisomy 21) in

approximately 96% of the cases and comprises approximately 15% of the population with learning disabilities. Pathological brain changes associated with Alzheimer's disease are found in the brain of all individuals with Trisomy 21 Down's syndrome after the age of 30 to 35 years. Perhaps 20-30 years pass as the disease process evolves from mild to severe pathological changes. Physiological and immune defences are severely affected in the late stages of Alzheimer's disease.

Not all persons with Down's syndrome show evidence of cognitive deterioration or other clinical evidence of dementia even after extended periods of observation. Despite the pathological changes in the brains of almost all with Down's syndrome over 30, clinical symptoms of dementia are observed in 8% of those aged 35-49, 45% of those over 45, and 75% of those over 60.

Longitudinal studies show that average age of onset of dementia in people with Down's syndrome is 54 years. The average duration of dementia is about four and a half years. Average age at death of those with a confirmed neuropathological diagnosis of Alzheimer's disease is 58 years. Cognitive impairments can be identified three to four years before neurological signs of Alzheimer's disease can be detected.

Retrospective studies provide a somewhat different picture, possibly due to methodological differences. Average age of onset of dementia in people with Down's syndrome was 44 years, with a range from 32-55 years. Death occurred at an average age of 50.6 years, range 35-59 years.

Conclusion

Caution is needed in interpreting these data. They do not give planners precise guidance. Nevertheless the trends are clear. There is likely to be an increase over the next few years in the proportion of people with Down's syndrome requiring greatly increased support as a consequence of deterioration from dementia although the numbers are likely to be small.

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