european aluminium association

ALUMINIUM AND HEALTH

Fact sheet 3

WHAT IS ALZHEIMER'S DISEASE ?

Alzheimer's Disease (AD) is a chronic condition that is characterised by progressive loss of memory and other brain functions of daily living. It is the most common type of dementia and most cases occur after the age of 65. The specific diagnosis of Alzheimer's Disease.) can be difficult. A certain diagnosis can only be confirmed by brain biopsy and the finding of both the accumulation of unusual protein substances associated with damage to nerve cells called Neurofibrillary Tangles (NFT) and scars called Senile Plaques (S.P.) Brain MRI scan could detect sign of Alzheimer's before any symptoms start to show.
More than half of all cases of dementia are considered to be A.D., and about 5% of the population at the age 70-80 years is affected by A.D.

A.D. appears to be a multi-factorial disease that involves genetic and environmental factors. Despite over twenty years of extensive research, no clear cause has yet been found. Current emphasis is on a genetic linkage, which was formerly considered important only for Alzheimer's disease of early onset. Recent research have also linked several genetic factors to late onset Alzheimer's disease. It is likely that also environmental risk factors contribute to the development of A.D., but much less is known about these.

The impairments which occurred particularly in the past and were attributed to aluminium accumulation in the body during kidney dialysis using tap water for the dialysis fluid in patients with severe kidney dysfunction, is different from Alzheimer's Disease. Behavioural features are different and the diagnostic structural brain changes of Alzheimer's Disease are not present. This "dialysis dementia" is now rare and can be treated and usually reversed, in contrast to A.D..

DOES ALUMINIUM PLAY A ROLE IN ALZHEIMER'S DISEASE ?

The possibility of a link between aluminium and Alzheimer's disease surfaced in 1965. When injecting aluminium salts directly into the brain of rabbits it produced some histopathological changes. These were later shown to be different from the changes found in Alzheimer's Disease.

Subsequent research has produced conflicting results. A research group in Newcastle, UK. found aluminium in the core of the senile plaques associated with A.D. Researchers at the Institute of Basic Research and Developmental Disabilities, N.Y. found varying levels of aluminium and silicon co-localised in about half the tangles and plaques studied in the brains of Alzheimer patients.

The variability of detection and the low levels of aluminium present indicated to them that aluminium is not necessary for the formation of the structural abnormalities within the brains of Alzheimer patients. A group at Oxford University, UK. using advanced analytical techniques on unstained samples did not find aluminium in the core of the senile plaques.
A Norwegian study, set up to eliminate several of the earlier difficulties, found no difference in the aluminium content in selectively affected areas of the brain between Alzheimer patients and a control group.

The latest comprehensive report was produced in 1997 by a Task Group of the International Programme on Chemical Safety, under the auspices of the World Health Organisation (WHO) and the United Nations Environment Programme (UNEP). This report concludes that “There is no evidence to support a primary causative role of aluminium in Alzheimer's disease and aluminium does not induce Alzheimer's disease pathology in vivo in any species, including humans. The hypothesis that exposure of the elderly population in some regions to higher levels of aluminium in drinking water may exacerbate or accelerate Alzheimer's disease is not supported by available data''. *This has been confirmed since that time by several national or international collective expertise groups or national health agencies (see references).*
During the International Conferences on Alzheimer and related disorders held at regular intervals and attended by more than one thousand specialists, aluminium has not been considered to be one of the factors involved A.D.

The aluminium industry has always taken a responsible attitude to health concerns about aluminium. It has provided considerable resources to key centres with eminent researchers in this field to help improve knowledge of the causes of this disease.

While leading scientists, medical authorities and Alzheimer researchers continue to discount the involvement of aluminium, the industry believes that research into the possible causes of Alzheimer’s Disease should continue until the cause(s) and cure are found.

Reference list:

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