

# FOCUS ON RESEARCH

## A CASE-CONTROL STUDY OF VITAMIN D LEVELS IN ALZHEIMER'S DISEASE

### Researchers

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### Aim

To provide relevant data about vitamin D status in AD that inform about the potential benefits of primary prevention of hip fracture with calcium and vitamin D supplements in this population.

### Project Outline/Methodology

Case-control study comparing vitamin D status in community-resident people who have Alzheimer's disease with their spouses who do not have Alzheimer's disease.

### Key Results

Twenty-three people with Alzheimer's disease (9 men, 14 women, whose average age was 77 years) and 22 healthy people without Alzheimer's disease (14 men, 8 women, whose average age was 74 years) participated in the study. For those with vitamin D levels available, one case (4.5%) out of the 22 cases was found to have vitamin D deficiency. Similarly one control (4.8%) out of the 21 controls was found to have vitamin D deficiency. The average vitamin D level of people with Alzheimer's disease was no different from that of those without Alzheimer's disease. We checked to see if we could have missed detecting a high prevalence of vitamin D deficiency in people with Alzheimer's disease just by chance. We calculated that the number of people taking part in the study was adequate so that if the actual proportion of vitamin D deficiency in all the people with Alzheimer's disease in Scotland was at least 25%, we would have found this 9 out of 10 times. This was far below the 80% proportion with vitamin D deficiency found in the only previous study of vitamin D status in Alzheimer's disease.

### Conclusions

The study results indicate that it is very unlikely that a high proportion of community-resident people with Alzheimer's disease have unrecognised vitamin D deficiency. Hence, this is not likely to be a factor associated with the increased risk of hip fractures in people with Alzheimer's disease.

### What does this study add to the field?

The only previous study of vitamin D status in Alzheimer's disease was in nursing home residents in Japan. This found a vitamin D deficiency prevalence of 80%. However, studies of people in UK nursing homes without Alzheimer's disease find a similar vitamin D deficiency prevalence. This study shows that, although people with Alzheimer's disease are at higher risk of fractures, this is unlikely to be directly related to the condition itself.

### Implications for Practice or Policy

On the basis of the only previous report, vitamin D screening would have been indicated for people with Alzheimer's disease. This study indicates that such screening is unnecessary in those people with Alzheimer's disease who remain in their own homes. Separate Scottish Executive guidance already covers all institutionalised people in Scotland.

### Where to next?

This study suggests that the cause of increased fractures in people with Alzheimer's disease cannot be fully attributed to higher prevalence of vitamin D deficiency. Other factors about the disease should be considered for intervention to prevent fractures.

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