Vitamin D deficiency increases the risk of cognitive decline in the elderly

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A research team from the Peninsula Medical School, University of Exeter, has established the first clear link between vitamin D deficiency and the development of cognitive problems that are a key feature of dementia.

Findings from the study led by Dr. David J. Llewellyn are being published in the prestigious journal Archives of Internal Medicine, and are the result of an international collaboration involving researchers from the University of Michigan, the UK Medical Research Council Biostatistics Unit, the Perugia University Hospital and Medical School in Italy, and the US National Institute on Aging.

Vitamin D is a fat-soluble vitamin that is present in a few foods such as oily fish and is available as a dietary supplement. Vitamin D is mainly produced when skin is exposed to ultraviolet rays from sunlight. However as people age their skin becomes less efficient at producing vitamin D, and the majority of older adults in Europe and the US have insufficient levels. Interest in vitamin D has intensified recently as researchers have identified that it may play an important role in protecting against a wide range of age-associated diseases such as cancer, heart disease and stroke.

The research involved over 850 older people (aged 65 or over) living in Italy who participated in the InCHIANTI study between 1998 and 2006. Each participant had their cognitive function assessed using standard measures of general cognitive performance (the Mini-Mental State

Examination or MMSE), mental flexibility (Trail Making Test A) and mental speed (Trail Making Test B).

Compared to participants with healthy levels of vitamin D, participants who were severely deficient were 60 per cent more likely to experience substantial general cognitive decline, and 31 per cent more likely to experience new problems with mental flexibility.

Dr. Llewellyn commented: "This is the first study to identify a clear link between low vitamin D levels and cognitive decline. Previous research has been cross-sectional but we have now been able to demonstrate a connection between having low levels of vitamin D and going on to develop cognitive problems. It is estimated that 1 billion people worldwide have insufficient levels of vitamin D, so this is cause for real concern. Few foods contain vitamin D, synthesis from sunlight is not possible for much of the year at northern latitudes, and skin becomes less efficient at producing vitamin D with age.

"Cognitive decline and dementia are also very common in older adults, though the underlying causes are still largely unknown and current options for prevention and treatment are limited. Vitamin D deficiency is therefore a highly promising therapeutic target for the prevention of dementia, particularly as supplements are inexpensive and safe and have already been shown to reduce the risk of falls, fractures and death. Given the coming dementia epidemic funding should now be made available to extend our research and conduct intervention trials as a matter of urgency."

According to the Alzheimer's Research Trust, dementia affects 822,000 people in the UK which costs the economy £23 billion per year. This cost of dementia per year in the UK is higher than cancer (£12 billion) and heart disease (£8 billion) combined. However, government and charitable spending on dementia research is 12 times lower than cancer

research and three times lower than heart disease. Dementia research is therefore severely underfunded in the UK, although the number of people with dementia is predicted to reach over 1.7 million by 2050.

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