Lithium in tap water could lower dementia risk

Chris Smyth Health Editor

People living in areas with high levels of lithium in tap water are 17 per cent less likely to get dementia, according to a large study that suggests the naturally occurring metal could help to prevent mental decline.

The findings raise the possibility that lithium could one day be added to drinking water to protect the brain in the same way as fluoride is added to protect teeth.

Lithium is already widely available as a psychiatric drug and experts said the findings suggested that it could be used as a treatment to prevent dementia if further trials proved successful. Lithium is known to affect neurological signalling and has long been used as a treatment for conditions such as bipolar disorder. It occurs naturally in water and previous studies have found lower suicide rates in areas with higher levels.

Scientists studied 74,000 older people with dementia and 734,000 without across Denmark, comparing illness rates with lithium levels, which were 15 times higher in some areas.

Scientists at the University of Copenhagen found that dementia rates increased slightly with low levels of lithium before falling sharply above 10 micrograms per litre. At 15 to 27 micrograms/l, dementia rates were 17 per cent lower than for 2-5 micrograms/l, according to results published in *JAMA Psychiatry*.

The authors acknowledged that other factors could explain the results, including worse healthcare in the remoter areas that had less lithium in water, but they said it was plausible that tiny amounts in tap water could have a significant effect on dementia.

In a linked editorial John McGrath, of the University of Queensland, and Michael Berk, of the University of Melbourne, wrote: "In the spirit of alchemy, could we convert lithium, a simple metal used as a mood stabiliser, into a golden public health intervention that could prevent dementia?

They added: "That a relatively safe, simple, and cheap intervention (ie optimising lithium concentrations in the drinking water) could lead to the primary prevention of dementia is a tantalising prospect."

David Smith, emeritus professor of pharmacology at the University of Oxford, said the findings tallied with MRI studies showing that lithium salts increased the volume of areas of the brain involved in Alzheimer's. However, he added: "We should not be adding lithium salts to our tap water because we would not know what amount to use."

David Reynolds, chief scientific officer at Alzheimer's Research UK, said: "It is potentially exciting that low doses of a drug already available in the clinic could help limit the number of people who develop dementia."

Rob Howard, professor of old-age psychiatry at University College London, said: "These results represent another important piece of evidence for lithium's potential as a treatment for Alzheimer's disease. We now need clinical trials of lithium in patients with Alzheimer's disease to determine once and for all whether this cheap and well-tolerated element can slow dementia progression."