

DAILY NEWS 7 December 2016

Light therapy could break down Alzheimer's brain deposits

Time to shed some light on Alzheimer's

Drbouz/Getty

Could the answer to fighting Alzheimer's disease be as simple as a flickering light?

An hour a day of light therapy has been found to break down Alzheimer's-like brain deposits in mice. That's a long way from it working in people, but because it seems a safe therapy, it could move quickly into human trials. "This is really intriguing because it's such an unexpected and brand new method for tackling the disease," says Jon Brown of the University of Exeter, UK, who was not involved in the work.

Ed Boyden at the Massachusetts Institute of Technology and his team exposed mice to a light flickering at 40 hertz. This triggered brain cells to oscillate together, creating gamma waves – a type of brain activity that is often weaker in people with Alzheimer's.

After they had been exposed to the light for an hour a day for a week, the rodents' brains contained fewer beta-amyloid plaques, which are hallmarks of the disease. The light seemed to boost the activity of cells that clear amyloid, and cut amyloid production.

Tau tangles

Most treatments developed for Alzheimer's so far target beta-amyloid. Although several of these drugs have produced promising results in mice, they have failed to halt mental deterioration in people. This may be because beta-amyloid plaques are the wrong target, and tangles of tau protein that form inside brain cells could be the real culprit.

But Boyden's team has found that the light therapy reduced the number of tau tangles in the rodents' brains too, although it's unknown how this happened.

There's a hitch though – beta-amyloid and tau tangles were only reduced in the animals' visual cortex, not in the memory areas that the disease damages first. But Boyden still plans to try light therapy in people, perhaps using a phone or a computer screen.

If light doesn't work, the group plans to try inducing gamma waves in the hippocampus using electrodes on the head or implanted into the brain.

There are also drugs in early development that promote gamma waves over the whole brain, says Brown.

Journal reference: *Nature*, DOI: 10.1038/nature20587

A shorter version of this article was published in *New Scientist* magazine on 10 December 2016

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