Low salt intake may raise risk of heart attack, stroke, and death

Written by: Honor Whiteman

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A high salt intake has been linked to increased blood pressure and greater risk for heart problems. But according to new research, published in *The Lancet*, low salt intake may be just as harmful.

Lead author Andrew Mente, of the Michael G. DeGroote School of Medicine at McMaster University in Canada, and colleagues say their results indicate only people with high blood pressure who have a high salt intake should reduce their salt consumption.

Furthermore, the researchers suggest current recommendations for daily salt consumption may be set too low.

The Dietary Guidelines for Americans recommend that Americans consume less than 2,300 milligrams of sodium each day – the equivalent to 1 teaspoon of salt.

However, a report from the Centers for Disease Control and Prevention (CDC) earlier this year revealed that around 90 % of Americans consume salt at levels above the recommended limit.

It is widely accepted that too much salt in the diet can lead to high blood pressure, increasing the risk for heart attack, stroke, and other cardiovascular diseases.

But does reducing salt intake to the levels recommended in current guidelines really reduce the risk of such outcomes? This is what Mente and colleagues set out to investigate.

Risks of high salt intake only found in people with hypertension

The team analyzed data of more than 130,000 individuals spanning 49 countries.

They looked at the sodium intake of participants and how this related to the risk of heart disease and stroke among those with and without high blood pressure.

Compared with people who had an average sodium intake, the rates of heart attack, stroke, and death were higher among those who had a low sodium intake, regardless of whether they had high blood pressure.

Interestingly, low salt intake in the study was defined as an intake of less than 3,000 milligrams a day, which is above current recommendations in the United States.

Furthermore, the researchers found that only individuals with high blood pressure appeared to be subject to the risks associated with high salt intake – defined as more than 6,000 milligrams daily.

"While our data highlights the importance of reducing high salt intake in people with hypertension, it does not support reducing salt intake to low levels.

Our findings are important because they show that lowering sodium is best targeted at those with hypertension who also consume high sodium diets."

Furthermore, the team believes the results indicate that the current daily recommendation for salt intake may be set too low.

"This study adds to our understanding of the relationship between salt intake and health, and questions the appropriateness of current guidelines that recommend low sodium intake in the entire population," says study co-author Martin O'Donnell, of McMaster University and the National University of Ireland Galway.

"An approach that recommends salt in moderation, particularly focused on those with hypertension, appears more in-line with current evidence."

Alzheimer's vaccine steps closer with new study

Written by: Honor Whiteman

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Researchers say an Alzheimer's vaccine could be tested on humans within 3–5 years , after researchers from the United States and Australia have uncovered a formulation that they say successfully targets brain proteins that play a role in development and progression of the disease. Study co-author Prof. Nikolai Petrovsky, of Flinders University School of Medicine in Australia, and colleagues reveal in the journal *Scientific Reports* how a vaccine combination generates antibodies that target beta-amyloid and tau proteins in the brain – both of which are considered hallmarks of Alzheimer's disease.

Beta-amyloid plaques and tau protein tangles are believed to disrupt signaling between nerve cells and contribute to nerve cell death.

Vaccine combo boosts antibody response to Alzheimer's proteins

Between 2002–2012, 413 clinical trials were conducted worldwide that assessed the safety and efficacy of 244 compounds against Alzheimer's. Only one new drug came out of these trials and this drug only induces short-term relief of Alzheimer's symptoms.

As a result of such poor outcomes, the National Institutes of Health (NIH) increased their funding for Alzheimer's research by $350 million, bringing the total funding for research in the U.S. to $1.3 billion this year.

According to Prof. Petrovsky and colleagues, such funding has led to the development of their "exceptional" vaccine, which is comprised of a MultiTEP vaccine platform and Advax.

The team explains that the MultiTEP approach produces high antibody responses to beta-amyloid and tau proteins either independently or combined, while Advax is an adjuvant vaccine that further boosts the antibody response.

In their study, the researchers found that the formulation was effective and well-tolerated in Alzheimer's mouse models, with no reports of adverse reactions. The vaccine was also able to target the proteins in brain tissue from patients with Alzheimer's.

"This study suggests that we can immunize patients at the early stages of AD [Alzheimer's disease], or even healthy people at risk for AD, using our anti-amyloid-beta vaccine, and, if the disease progresses, then vaccinate with another anti-tau vaccine to increase effectiveness."

stated study co-author Prof. Michael Agadjanyan, Institute for Molecular Medicine, California.

According to the Alzheimer's Association, around 5.4 million people in the U.S. are living with Alzheimer's, and this number is expected to almost triple by 2050 unless new, effective treatment strategies are uncovered.

The researchers say they will be working with four companies to assess the non-clinical safety and toxicology of the vaccine, which is required under the U.S. Food and Drug Administration's (FDA) Investigational New Drug program.

If the vaccine continues to show success in these preclinical trials, the researchers could be testing the vaccine in individuals at high risk for Alzheimer's or those in the early stages of the disease within the next 3–5 years.