New form of treatment to reduce risk for surgery-related ischemic brain injury?

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Ischemic brain injury due to heart and vascular surgery cause more than 100,000 deaths annually in Europe and the United States. In addition, approximately 10–20% of patients undergoing heart and vascular surgery – at least 1.5 million people in Europe and the United States every year – suffer from ischemic brain injury as a side-effect of their surgery.

Researchers from the Institute of Biotechnology at the University of Helsinki, Finland, have found that water-only fasting or protein-free diet before stroke reduce the amount of damaged brain tissue in rats by nearly 40%.

Academy Research Fellow Jaan-Olle Andressoo notes that reducing brain damage caused by surgery, some of which results in what are known as "silent strokes", would be extremely important. A silent stroke, often left undiagnosed, may disrupt the brain's capacity to process information. Patients may experience cognitive difficulties after heart surgery, e.g. find that they can no longer complete everyday tasks as easily as before.

"Minimising brain damage is the main target of our research, and we are now seeking partners to enable us to test the pre-surgery diets on patient groups."

Academy Research Fellow Kaisa Hartikainen, a neurologist at the Behavioural Neurology Research Unit at the Tampere University Hospital, considers the findings interesting.

"Despite an enormous amount of research in recent years into treatments and drugs that could protect neurons from irreversible damage caused by oxygen deprivation, neuroprotective treatments have largely proved ineffective in stroke patients. Results from short-term dietary restriction studies on rats, however, offer a promising new alternative for use in conjunction with surgical treatments associated with a significant risk for stroke."

More information: Varendi K, Airavaara M, Anttila J, Vose S, Planken A, et al. (2014) "Short-term Preoperative Dietary Restriction Is Neuroprotective in a Rat Focal Stroke Model." *PLoS ONE* 9(4): e93911. DOI: 10.1371/journal.pone.0093911

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