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Omega-3 can reduce brain problems after stroke

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Singapore: A new study by researchers at Columbia University Medical Center, US, revealed that injection of triglyceride lipid emulsions (that are rich in an omega-3 fatty acid) within a few hours of an ischemic stroke can decrease the amount of damaged brain tissue by 50 percent or more in mice.

The results suggest that the emulsions may be able to reduce some of the long-term neurological and behavioral problems seen in human survivors of neonatal stroke and possibly of adult stroke, as well.

Currently, clot-busting tPA (recombinant tissue-type plasminogen activator) is the only treatment shown to improve recovery from ischemic stroke. If administered soon after stroke onset, the drug can restore blood flow to the brain but may not prevent injured, but potentially salvageable, neurons from dying. Drugs with neuroprotective qualities that can prevent the death of brain cells damaged by stroke are needed, but even after 30 years of research and more than 1,000 agents tested in animals, no neuroprotectant has been found effective in people.

Omega-3 fatty acids may have more potential as neuroprotectants because they affect multiple biochemical processes in the brain that are disturbed by stroke, said the study's senior author, Dr Richard Deckelbaum, director, Institute of Human Nutrition, College of Physicians and Surgeons, Columbia. "The findings also may be applicable to other causes of ischemic brain injury in newborns and adults," added co-investigator Dr Vadim S Ten, associate professor of pediatrics, Department of Pediatrics at Columbia.

The effects of the omega-3 fatty acids include increasing the production of natural neuroprotectants in the brain, reducing inflammation and cell death, and activating genes that may protect brain cells. Omega-3 fatty acids also markedly reduce the release of harmful oxidants into the brain after stroke. "In most clinical trials in the past, the compounds tested affected only one pathway. Omega-3 fatty acids, in contrast, are very bioactive molecules that target multiple mechanisms involved in brain death after stroke," Dr Deckelbaum said. A number of key pathways whereby omega-3 fatty acids are active in neuroprotection after ischemia have been uncovered by co-investigator, Dr Nicolas Bazan, director of the Neuroscience Center of Excellence, Louisiana State University Health Sciences Center, US.

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