

Joint Event on

NUTRACEUTICALS & DIET- NUTRITION 2018

May 14-15, 2018 | Singapore City, Singapore

ICAM611, a polyphenol-rich supplement, attenuates brain damage and dysfunction induced by cerebral ischemia in animal model of metabolic syndrome

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Statement of the Problem: Currently, the therapeutic intervention against cerebral ischemia associated with metabolic syndrome (MetS) is required. Based on the crucial roles of oxidative stress and inflammation on the pathophysiology of cerebral ischemia in MetS, the beneficial effect of the supplement possessing antioxidant and anti-inflammatory activities on aforementioned condition has been considered. Therefore, the purpose of this study is to investigate the effect of ICAM611, a polyphenol rich supplement on brain damage and dysfunction induced by cerebral ischemia in animal model of MetS.

Methodology & Theoretical Orientation: Male Wistar rats weighing 200-250 g were induced metabolic syndrome by high carbohydrate high fat (HCHF) diet for 16 weeks. The rats which showed MetS characteristic were induced ischemic-reperfusion injury for 90 minutes and were orally given ICAM611, the supplement containing the combined extract

of *Oryza sativa* (purple color) and *Anethum graveolens* at doses of 0.5, 5 and 50 mg/kg BW once daily for 14 days. The animals were determined spatial memory and neurological score every 7 days. At the end of experiment, they were also determined ischemic brain volume, oxidative stress status, neuron density.

Findings: All doses of ICAM611 significantly improve memory impairment, brain infarcted volume and edema. The improved oxidative stress status and neuron density in prefrontal cortex and hippocampus were also observed.

Conclusion & Significance: The current results suggested the potential neuroprotective effect against cerebral ischemia in metabolic syndrome condition. The possible underlying mechanism occurs partly via the improved oxidative stress. However further investigations are required before moving forwards to clinical trial study.

Biography

Warin Ohn-on is pursuing the PhD degree in neuroscience program of Integrative Complementary Alternative Medicine Research and Development Center, Khon Kaen University, Khon Kaen, Thailand. She has experience in research of the functional food and herbal health product. She has been doing researches on stroke in metabolic syndrome in animal model including in vitro and preclinical study. And also she has petty patent concerning functional food.

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