YONEI Yoshikazu, MD

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AURIC

Let's reduce glycation stress, a risk factor for aging

Session: PREVENTION & PRACTICE OF GLYCATION

Glycation occurs when a reducing sugar, such as glucose or fructose, combines with a protein in a non-enzymatic reaction producing glycated proteins, finally forming body wastes called "advanced glycation end products (AGEs)". Furthermore, AGEs, not only deposited in the tissue, may also bind to a specific receptor called "RAGE (receptor for AGEs), followed by stimulating cellular signal pathways, inducing inflammatory cytokine production and causing inflammatory damages in skin and other tissues. Glycative stress is a risk factor of aging and age-related diseases, i.e., atherosclerosis, osteoporosis, skin aging, cataract.

Three steps reducing the glycarive stress are as follows;
a) Reducing impacts by glucose, fructose and AGEs
Primary prevention is achieved by encouraging maintenance of reasonable skeletal muscle mass, moderate exercise, and proper eating habits; avoiding excess glucose, fructose and dietary AGEs; eating slowly; chewing food well; choosing foods that do not raise blood sugar rapidly; vegetable first; rich dietary fibers.
b) Prevention of AGE formation
AGE generation was inhibited by extracts from tea (Camellia sinensis), Japanese persimmon leaf (Diospyros kaki), banabá (Lagerstroemia speciosa), kuma bamboo (Sasa veitchii), Chinese blackberry (Rubus suavissimus), and mixed herb of Roman chamomile (Anthemis nobilis), hawthorn berry (Crataegus laevigata, syn. C. oxyacantha), dokudami (Houttuynia cordata), and grape leaf (Vitis vinifera).
c) Breaking AGEs
AGE breaking food and extracts are available; pomegranate, water chestnuts, rosemary, or iridoid containing plants (Morinda citrifolia, Cornus officinalis and Olea europaea). Recently, AGE BreakerTM, containing rosmarinic acid, is commercially available.

Regarding to the lifestyles, smoking and sleep disorder is another important factor which exacerbates glycative stress. We should correct these habits. Tobacco leaves contain a variety of ingredients enhancing glycation directly or mediated by the oxidative stress. The relation between sleep disorder and AGEs remains still unclear. Melatonin may be one of the key factors.

In conclusions, glycative stress can be reduced through an appropriate diet, lifestyle. Intake of anti-glycation materials, inhibiting AGE formation and/or breaking AGES, also may be useful. In this presentation, I would like introduce the methods how to reduce glycative stress.