Effects of Dietary Oils on the Survival Time and Renal Injury of Stroke-Prone Spontaneously Hypertensive Rats

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Purpose; Evaluating the effect of dietary oils on the survival time and renal injury in stroke-prone spontaneously hypertensive (SHRSP) rats.

Methods; A conventional laboratory diet was supplemented with various dietary oils at 10% (w/w). SHRSP rats were placed on the diets under loading with aqueous NaCl (1%) or tap water, and blood pressure and survival time were compared. At every 10 days, 24h-urine sample was collected to evaluate proteinuria. Blood urea nitrogen (BUN) and creatinine contents in sera were determined on day 50 of the feeding.

Results and Conclusions; Feeding rapeseed oil (RO) and hydrogenated soybean oil (HSO) diets shortened significantly the mean survival time of SHRSP rats by 40% as compared with soybean oil (SO). However, systolic blood pressure of SHRSP rats was similar among the three dietary groups. High-oleate safflower oil, high-oleate sunflower oil, olive oil and evening primrose oil groups as well as RO group exhibited significantly shorter mean survival times as compared with n-3 fatty acid-rich perilla and fish oil groups; lard, SO, sesame oil and safflower oil with relatively high n-6/n-3 ratios shortened the survival time by roughly 10%. No survival time-shortening effect on SHRSP rats was observed in the free fatty acid mixtures prepared from these oils, indicating that the observed effect was not due to their specific fatty acid compositions. Significant increases in urinary protein and BUN were also observed in SHRSP rats fed RO diets as compared with SO diets. We suggested that some vegetable oils contain a factor(s) which is toxic to SHRSP rats.

References; Huang M-Z., Watanabe S., Kobayashi T. et al. *Lipids* 32, 745-751(1997)