Effect of New Natto Extract on Blood Coagulation and Fibrinolysis

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<Introduction>

Natto, rich in various proteases, has been watched as a healthy food in recent years. We extracted a new substance with anticoagulant and fibrinolytic actions (abbreviated as NKCP) from natto culture without vitamin K and studied its effect on humans.

<Method>

NKCP was extracted from natto culture, which hydrolyzed the plasmin-specific synthetic substrate S-2251 at a rate of 10 nmol/mg. The effect of NKCP was observed in adult subjects orally given tablets containing 250 mg of NKCP daily for 2 weeks (subacute ingestion) and for 2 months (chronic ingestion). The subjects were followed up at a designated medical institution. Parameters determined included euglobulin lysis time (ELT), tissue plasminogen activator (tPA), activated partial thromboplastin time (APTT), D-dimer (D-d), fibrinogen (Fbn), fibrin degradation product (FDP), and hematocrit (Ht). The 3 subjective symptoms “headache,” “neck stiffness”, and “dizziness” were checked every month in the chronic ingestion group.

<Results>

Significantly decreased ELT was observed in the subacute ingestion group of 28 subjects (including 11 males and 17 females, average age 59.1 ± 12.1). No significant change was observed in other parameters. Compared with baseline values, ELT significantly decreased at 1 month and tPA increased at 2 months in the chronic ingestion group of 23 subjects (including 14 males and 9 females, average age 51.7 ± 12.4). A significant improvement was observed in the subjective symptom “neck stiffness.”

<Conclusion>

This study showed that oral ingestion of NKCP increased fibrinolytic activity in the blood and suggested that the significant improvement of neck stiffness in the chronic ingestion group

was due to improvement in local circulation. In the future, further study will be needed for clinical application to prevention of thrombosis.