

[A clinical study on the effect of nattokinase on carotid artery atherosclerosis and hyperlipidaemia]

[Article in Chinese]

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- PMID: 28763875 DOI: [10.3760/cma.j.issn.0376-2491.2017.26.005](#)

Abstract in [English](#), [Chinese](#)

Objective: To evaluate the efficacy of oral nattokinase (NK) in the reduction of common carotid artery intimal medial thickness (CCA-IMT) and carotid artery plaque size and in lowering blood lipids, and to explore the underlying mechanism of actions of NK and its potential clinical use. **Methods:** All enrolled patients were from the Out-Patient Clinic of the Department of TCM at the 3(rd) Affiliated Hospital of Sun Yat-sen University. Using randomised picking method, all patients were randomly assigned to one of two groups, NK and Statin (ST) group. NK Group-patients were given NK at a daily dose of 6 000 FU and ST Group-patients were treated with statin (simvastatin 20 mg) daily. [The treatment course was 26 weeks.](#) CCA-IMT, carotid plaque size and blood lipid profile of the patients were measured before and after treatment. **Results:** A total of 82 patients were enrolled in the study and 76 patients (NK 39, ST 37) completed the study. Following the treatments for 26 weeks, there was a significant reduction in CCA-IMT and carotid plaque size in both groups

compared with the baseline before treatment. The carotid plaque size and CCA-IMT reduced from $(0.25 \pm 0.12) \text{cm}^2$ to $(0.16 \pm 0.10) \text{cm}^2$ and from $(1.13 \pm 0.12) \text{mm}$ to $(1.01 \pm 0.11) \text{mm}$, respectively. **The reduction in the NK group was significantly profound ($P < 0.01$, 36.6% reduction in plaque size in NK group versus 11.5% change in ST group).** Both treatments reduced total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C) and triglyceride (TG). While the reduction in both groups was shown to be statistically significant ($P < 0.01$), the reduction of TC, LDL-C and TG in ST group was significantly greater ($P < 0.05$). In addition, NK significantly increased the level of high-density lipoprotein cholesterol (HDL-C) ($P < 0.05$), in contrast, HDL-C in the ST group did not change. The lipid lowering effect observed in the NK group was not correlated to the reduction of CCA-IMT and carotid artery plaque size ($r = 0.35$, $P = 0.09$). **Conclusions:** Our findings from this pioneer clinical study suggests that daily NK supplementation is an effective way to manage the progression of atherosclerosis and potentially may be a better alternative to statins which are commonly used to reduce atherosclerosis and further to prevent cardiovascular attack and stroke in patients. The mechanism underlying the reduction of carotid atherosclerosis by NK may be independent from its lipid-lowering effect, which is different from that of statins.

Keywords: Atherosclerosis; Carotid artery diseases; Dyslipidaemias; Nattokinase; Simvastatin.