Abstract

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Myo-inositol treatment increases serum plasmalogens and decreases small dense LDL, particularly in hyperlipidemic subjects with metabolic syndrome.

Maeba R, Hara H, Ishikawa H, Hayashi S, Yoshimura N, Kusano J, Takeoka Y, Yasuda D, Okazaki T, Kinoshita M, Teramoto T.

Department of Biochemistry, Teikyo University School of Medicine, Tokyo, Japan.

BACKGROUND AND AIM: We have previously shown that serum plasmalogen levels positively correlate with HDL, and significantly decrease with aging, and may be related to LDL particle size. The objective of the present study was to investigate the effects of increased serum plasmalogens on lipidosis, particularly the appearance of atherogenic small dense LDL (sdLDL), of subjects with hyperlipidemia and metabolic syndrome (MetS).

METHODS AND RESULTS: The effects of increased serum plasmalogen levels, induced by 2 wk of myo-inositol treatment, on several clinical and biochemical parameters were examined in 17 hyperlipidemic subjects including some with MetS. After myo-inositol treatment, significant increases in plasmalogen-related parameters, particularly ChoPlas, and significant decreases in atherogenic cholesterols including sdLDL, were observed. Among the hyperlipidemic subjects treated with myo-inositol, compared to subjects without MetS, subjects with MetS had a significant increase in plasmalogens and a tendency towards reduced sdLDL, high sensitivity C-reactive protein (hsCRP), and blood glucose levels. Correlation analyses between the measured parameters showed that plasmalogens, as well as HDL, function as beneficial factors, and that sdLDL is a very important risk factor that shows positive correlations with many other risk factors.

CONCLUSION: These results suggest that increased plasmalogen biosynthesis and/or serum levels are especially effective in improving MetS among hyperlipidemic subjects with MetS.

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