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Correlation between Plasma S1p and the Occurrence and Severity of Coronary Heart Disease in Postmenopausal Women

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Objective: Sphingosine-1-phosphate (S1P) is a bioactive sphingosine with antiatherosclerotic effects. The incidence of coronary heart disease (CHD) increased significantly among women after menopause. We explored the relationship between plasma S1P levels and the occurrence and severity of CHD in postmenopausal women.

Methods: Postmenopausal women admitted to our hospital for coronary angiography because of chest pain-like symptoms were included in our study. By 1:1 age matching (age difference ≤5 years), 166 women in the CHD group and control group were enrolled. The plasma S1P concentration was determined, and the Gensini score was calculated to decide the severity of CHD.

Results: Plasma S1P levels were significantly lower in the CHD group of postmenopausal women ($p < 0.001$). S1P (OR = 0.952, 95% CI = 0.934-0.970) was an independent predictor of the occurrence of CHD in postmenopausal women. The area under the curve (AUC) for S1P to predict the occurrence of CHD was 0.653 (95% CI = 0.595-0.712), and the cutoff value was 96.89 ng/mL. The plasma S1P level was the lowest in the high tertile group of the Gensini score ($p < 0.001$). And the plasma S1P (OR = 0.948, 95% CI = 0.926-0.970) was an independent predictor of a high Gensini score in postmenopausal women with CHD.

Conclusion: Plasma S1P is an independent risk factor of the occurrence and severity of CHD in postmenopausal women. The occurrence and aggravation of CHD in postmenopausal women may be related to levels of S1P.

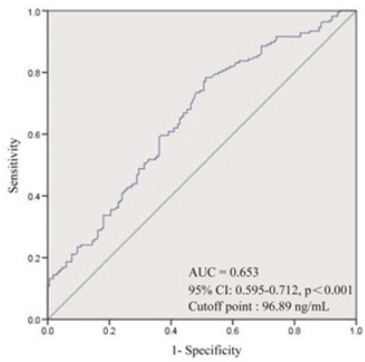

FIG. 1. ROC curve of S1P for the prediction of CHD. The AUC of S1P was 0.653 (95% CI, 0.595-0.712, $P < 0.001$); the cutoff point was 96.89 ng/mL, with a sensitivity of 78.3% and a specificity of 48.8%. AUC, area under the curve; CHD, coronary heart disease; ROC, receiver operating characteristic; S1P, sphingosine-1-phosphate.

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