Phosphatidylcholine Hydroperoxide of Increased in Type 2 Diabetic Patients

Aims

This study was designed to clarify serum phosphatidylcholine hydroperoxide levels related to blood glucose control in Type 2 diabetic patients.

Method

HPLC column: SIL-NH2
Mobile phase:

2-propanol-methanol-water (135:45:20, v/v/v)

CL reagent:
10 mg/L Cytochrome *c* and 1.0 mg/L luminol in borate buffer (pH 10.0)
Standard:

Photo-oxidized L-α-phosphatidylcholine, β-oleoyl-γ-palmitoyl（C18:1,[cis] -9/C16:0, SIGMA）

Detector: CLA-2100, CLA-FL2

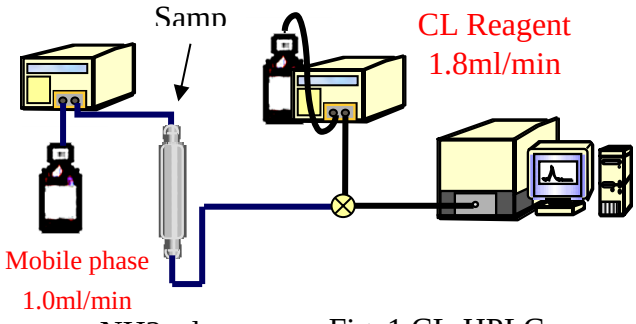

Fig. 1 CL-HPLC

Result

The data showed that (1) serum phosphatidylcholine hydroperoxide is increased in Type 2 diabetes patients, (2) the level strongly correlates with HbA_{1c} rather than the fasting blood glucose level.

Oxidative stress is markedly observed in Type 2 diabetes patients with an increase of serum PCOOH. Such oxidative stress might trigger the chronic complications in diabetes mellitus.

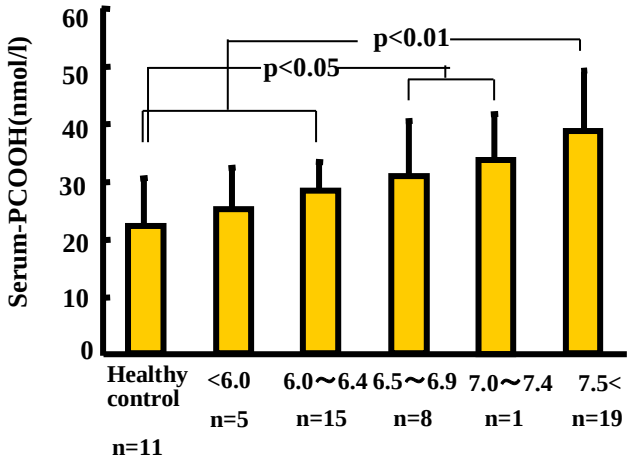

Fig. 2 Phosphatidylcholine hydroperoxide (PCOOH) levels in serum-PCOOH when normal volunteers and diabetic patients were subgrouped into 6 groups according to HbA_{1c} levels: (1) normal volunteers, (2) less than 6, (3) 6-6.4, (4) 6.5-6.9, (5) 7.0-7.4, and (6) over than 7.5 %.

Reference

Nagashima, T., Oikawa, S. and Yamada, R. : Diabetes Research and Clinical Practice, in press