

アルブミンの酸化及びカルボキシメチルリジン修飾： 透析患者における酸化ストレス亢進改善の可能性

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Oxidation and carboxy methyl lysine-modification of albumin: possible involvement in the progression of oxidative stress in hemodialysis patients.

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ABSTRACT : Hemodialysis (HD) patients are frequently in a state of increased oxidative stress, and hyperglycemia appears to be a major factor. However, the issue of whether oxidized HSA is associated with the progression of oxidative stress in HD patients with or without diabetes is not clear. In the present study, we examined the effect of a qualitative modification of HSA in HD patients with or without diabetes. The increase in plasma protein carbonyl content and advanced glycation endproducts (AGEs) in HD patients was largely due to an increase in the levels of oxidized HSA. Furthermore, these increases were greatest in HD patients with diabetes. Purified HSA from HD patients (non-DM-HSA) was carbonylated and AGE-modified. The amount of modified HSA was the highest in HD patients with diabetes (DM-HSA). Carboxy methyl lysine (CML)-modified HSA triggered a neutrophil respiratory burst, and this activity was closely correlated with the increase in the CML/HSA ratio. These findings indicate that uremia plays an important role in the progression of oxidative stress in HD patients via an increase in CML-modified HSA. They also indicate that diabetic complications further exacerbate the progression of oxidative stress by further increasing the amount of these modified HSA molecules.

抄録 今回、我々はアルブミンの酸化修飾と透析患者の酸化ストレス亢進における糖尿病との関連性について検討した。透析患者における Carboxy methyl lysine (CML)修飾アルブミンは 糖尿病併発と共に増加するだけでなく好中球活性化を引き起こした。今回の結果から透析患者において糖尿病により増加したCML修飾アルブミンが酸化ストレス亢進において重要な役割を示すことが明らかとなった。

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