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혈액투석 환자에서 AST-120이 혈관내피세포 기능부전에 미치는 효과

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Effect of AST-120 on Microvascular Endothelial Dysfunction in Hemodialysis Patients

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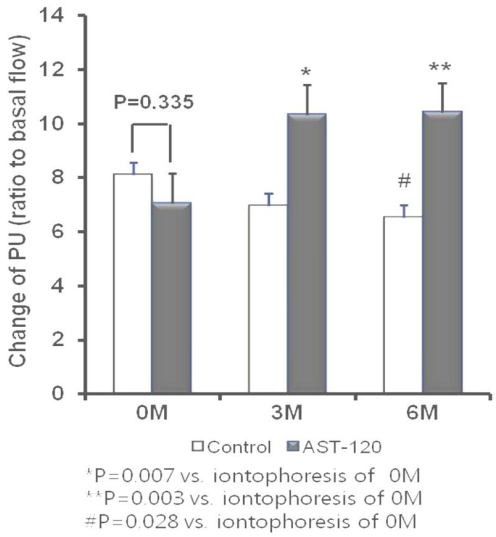
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Endothelial dysfunction (ED) is a pivotal phenomenon in the cardiovascular diseases (CVD), which are critical causes for morbidity and mortality in the patients receiving hemodialysis (HD). Indoxyl sulfate (IS), protein-binding uremic toxin which is not eliminated by HD has been known to induce endothelial dysfunction in chronic kidney disease. The aim of this study is to investigate whether AST-120, an absorbent for IS improves micorvascular or macrovascular ED in HD patients.

We conducted a prospective, case-control trial. Thirteen patients in both AST-120 group and the control were included, respectively. The subjects in AST-120 group were treated with AST-120 (6 g/day) for 6 M. Microvascular function was assessed by laser Doppler flowmetry using iontophoresis of Acetylcholine (Ach) and sodium nitroprusside (SNP) at baseline, 3M, and 6M, respectively. Carotid arterial intima-media thickness (IMT) and flow-mediated vasodilation (FMD) were measured at baseline and 6 M. Laboratory findings included the level of IS, blood chemistry, hsCRP at baseline, 3M, and 6M. Wilcoxon rank test was performed to compare the values before and after AST-120 treatment.

Ach-induced vasodilation of iontophoresis (endothelium-dependent response) in AST-120 group was significantly improved in 3M and 6M compared to baseline, respectively (Fig. 1). However, that of control was not. SNP-induced response was not significantly changed in either group. The level of IS was decreased at 3M, and did not show more decrease at 6M. IMT was significantly reduced at 6M compared to baseline in AST-120 group (mean IMT: 0.80 mm at baseline vs. 0.75 mm at 6M, p=0.013). However, the FMD at 6M did not show any change compared to baseline in either. Any significant side effect of AST-120 was not reported.

AST-120 ameliorated microvascular endothelial dysfunction and IMT in HD patients. Randomized, case-control study composed with larger population is required to prove definite role of AST-120 as a preventive medication for CVD in HD patients.



Key Words: 혈액투석, 혈관내피세포기능부전, AST-120
Hemodialysis, Endothelial dysfunction, AST-120