

## 혈액 투석 중인 말기 신부전 환자에서 혈청 마그네슘과 혈관내피세포의 임상적 의의

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### Clinical Significance of Serum Magnesium Level on Endothelial Function in End-stage Renal Disease Undergoing Hemodialysis

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**Background:** Magnesium affects the vascular tone and response and reacts as a cofactor for acetylcholine-induced endothelium-dependent relaxation. Chronic kidney disease (CKD) patients tend to have higher serum magnesium values than those in healthy population due to their positive balance of magnesium in kidney. There are several studies which reported that serum magnesium level was correlated with endothelial function positively. Recently it has been reported the patients with higher serum magnesium level revealed the less endothelial dysfunction in CKD patients. Thus, the following study was carried out in an effort to redefine the relationship between serum magnesium level and endothelial dysfunction to those on hemodialysis (HD) with the end-stage renal disease(ESRD).

**Methods:** This is a cross-sectional study and the enrolled 27 ESRD receiving HD patients were subjected to the measurement with iontophoresis, and FMD (flow mediated vasodilation), IMT (intima-media thickness), which represented endothelial function assessment from February 2011 to September 2012. And also the average serum magnesium level in patients was measured for the last three months including examination month.

**Results:** From univariate analysis, higher serum magnesium level was associated with better endothelium-dependent vasodilation (EDV) of FMD in ESRD undergoing hemodialysis ( $r=0.516$ ,  $p=0.007$ ). When participants were divided into two groups according to median value of magnesium level (3.466 mg/dl), there are significant difference in EDV of FMD (less than 3.466 mg/dl,  $8.26\pm 3.13\%$ ; more than 3.466 mg/dl,  $8.65\pm 5.33\%$ ,  $p=0.008$ ). Multivariate analysis adjusted by smoking, sex, age, comorbidity including diabetes mellitus, previous cerebrovascular accident history showed no significant correlation between the serum magnesium level and EDV.

**Conclusions:** This study showed that higher serum magnesium level may associate with better endothelial function even in ESRD undergoing HD. Furthermore, it is required a prospective study of larger population to identify the relationship between magnesium and endothelial function and to establish optimal reference range of serum magnesium level instead of strict restriction of magnesium in ESRD on HD patients.

**Key Words:** 마그네슘, 혈액투석, 내피세포기능

Hemodialysis, Magnesium, Endothelial dysfunction