

Nitric Oxide is a Marker of Peritonitis in Patients on Continuous Ambulatory Peritoneal Dialysis

Soo Wan Kim, M.D., Taek Kyun Jeong, M.D., Seong Cheol Lee, M.D., Nam Ho Kim, M.D., Ki Young Lee, M.D., Ki Chul Choi, M.D., and Young Joon Kang, M.D.

Departments of Internal Medicine and Biochemistry,
Chonnam University Medical School, Kwangju, Korea

Objectives : The aim of this study was to evaluate if NO production was altered during peritonitis in patients receiving continuous ambulatory peritoneal dialysis (CAPD), and the association with the severity and prognosis of CAPD-induced peritonitis.

Methods : The study population comprised thirty patients with 30 episodes of peritonitis. Thirteen patients without peritonitis were CAPD control, and eighteen patients with normal renal function were used as normal control. Total NO metabolites (NOx; nitrite+nitrate) were measured by the Griess method, to reflect nitric oxide production. Peritoneal dialysate effluent and plasma were collected from thirty patients during peritonitis, every day for the first 3 days, and then every 3 days for 2 weeks or until the patients discharged.

Results : Plasma NOx levels of control, CAPD control and CAPD peritonitis groups were 87.0 ± 11.5 , 163.0 ± 30.7 and 146.3 ± 18.1 μM , respectively. Dialysate NOx levels of CAPD control and CAPD peritonitis groups were 91.8 ± 13.1 and 103.8 ± 14.1 μM , respectively, and dialysate NOx levels between two groups were not different. In CAPD peritonitis group, the peak dialysate/plasma (D/P) ratios during acute phase were exceeded 1.0 in 46.7% patients of CAPD peritonitis group. The D/P ratios of NOx levels before and after treatment were 1.03 ± 0.07 and 0.56 ± 0.05 , respectively. On the contrary, NOx levels in dialysate after treatment were not decreased, but those in plasma were increased after effective antibacterial treatment. The peak D/P ratio were increased 2.1-fold in bacterial peritonitis and 2.3-fold in fungal peritonitis compared with CAPD control group. The lowest D/P ratios after treatment were similar to CAPD control in patients with effective treatment, but remained 1.5-fold higher in patients that treatment were ineffective. In the evolutionary study, the D/P ratios of NOx levels gradually declined to CAPD control group levels (6.6 ± 2.5 days) after effective antibiotic treatments, but took longer times than to normalize leukocyte counts in the peritoneal dialysate effluents (3.8 ± 1.2 days). In five patients with refractory peritonitis (Candida infection in three, Staphylococcus aureus infection in two), the D/P ratios of NOx levels remained elevated 1.5-fold despite treatment, and the catheters were removed. These results suggest that dialysate NOx may be influenced by not only local NO production but also plasma NO or NOx diffusion. Therefore, we can suppose that the D/P ratio of NOx levels provides more clinical significance rather than dialysate NOx levels only.

Conclusion: The D/P ratios of NOx levels may serve as a marker to assess the severity of peritoneal inflammation, the treatment efficacy and progression of refractory peritonitis in CAPD patients with peritonitis.

한국인에서 5,10-Methylenetetrahydrofolate Reductase(MTHFR)

유전자 다형성에 관한 연구

순천향대학교 천안병원 내과학교실, 기초과학지원연구소 생체고분자분석그룹*

강문수*, 최종순*, 하권수*, 양동호, 홍세용

배경: 고호모시스테인혈증은 동맥경화증을 유발하는 하나의 독립적인 위험인자로 알려져 있다.

호모시스테인 대사에 필요한 효소인 MTHFR의 유전자 변이는 활성도가 감소된 열불안정성 효소를 생성하여 호모시스테인의 혈중농도를 증가시키게 되어 동맥경화증 혈관질환과의 관련성이 제시되고 있다. 이에 본 논문에서는 한국인에서의 677C→T변이 MTHFR 유전자의 발생율을 조사하여 이후 심혈관환자군과의 발생을 비교를 위한 예비연구를 하고자 하였다.

대상 및 방법: 순천향대학 천안병원 건강검진센터에 내원하였던 건강검진자 312명을 대상으로 MTHFR 유전자 변이 빈도와 체질량지수, 혈압, 지질검사를 하였다.

결과: 대상자 312명의 MTHFR 유전자형의 동형접합성 변이(VV)가 51명(16.4%)이었고 이형접합성 변이(AV)는 160명(51.3%)였으며, 변이가 없는 정상인 형태(AA)가 101명(32.4%)이었다. 고혈압 환자는 전체 수검자 312명중 83명(26.6%)이었으며 VV 형에서는 51명중 10명(19.6%), AV 형에서는 160명중 43명(26.9%), AA 형에서는 101명중 30명(29.7%)으로 이들의 분포는 정상 혈압군과 통계적으로 유의한 차이를 보이지 않았다.

결론: 한국인에서 MTHFR 유전자형의 빈도는 백인, 일본인, 이탈리아인과 유사하였으나 흑인에 비하여 VV형이 많았다. 고혈압과 MTHFR 유전자 변이사이의 연관성은 없었다.