

혈액투석 환자에서 헤모컨트롤 시스템의 임상적 영향

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Clinical Effects of Hemocontrol Biofeedback System on Hemodialysis Patients

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Background: Hemocontrol biofeedback system has been reported to reduce the frequencies of intradialytic hypotension (IDH). Therefore, this study was intended to investigate how this dialysis system affects hemodialysis patients.

Methods: Seven patients undergoing hemodialysis were enrolled in this study. Study periods were 26 weeks and composed of A, B1 and B2 periods. 'A' was control period. Both 'B1' and 'B2' were the periods applied hemocontrol system. In each period, laboratory data and clinical parameters were checked.

Results: After applying hemocontrol system, IDH frequencies in B1 period were significantly reduced (A-B1, from 7.7 ± 2.6 to 4.4 ± 3.3 , $p=0.034$). Other parameters did not show significant changes. When comparing hemocontrol high response patients ($n=3$) with low response patients ($n=4$), there were the following significant differences (high vs. low). IDH (B1) (1.7 ± 0.6 vs. 6.7 ± 3.5 , $p=0.046$), pre-dialysis DBP (B1/B2) (69.0 ± 6.1 vs. 91.7 ± 7.5 mmHg, $p=0.049$), pre-dialysis MAP (B1/B2) (92.7 ± 5.9 vs. 111.0 ± 6.2 mmHg, $p=0.049$), post-dialysis DBP (B1) (74.7 ± 2.5 vs. 92.3 ± 8.1 mmHg, $p=0.049$), interdialytic 48-h ambulatory DBP (B1/B2) (78.6 ± 4.5 vs. 98.0 ± 1.4 mmHg, $p=0.049$), interdialytic 48-h ambulatory MAP (B1/B2) (103.6 ± 8.6 vs. 120.2 ± 1.1 mmHg, $p=0.049$), post-dialysis overhydration (OH) value by bioimpedance spectroscopy (B2) (1.9 ± 0.7 vs. -0.5 ± 1.0 liter, $p=0.046$), intradialytic OH value reduction (B1) (1.3 ± 0.2 vs. 2.4 ± 0.6 liter, $p=0.049$), intradialytic body weight reduction (B1) (1.6 ± 0.2 vs. 2.7 ± 0.6 kg, $p=0.049$), beta-blocker dose index (B1/B2) (1.3 ± 0.6 vs. 0.4 ± 0.1 , $p=0.043$), 1.3 ± 0.6 vs. 0.5 ± 0.0 , $p=0.033$).

Conclusion: This study showed that hemocontrol system could be useful for reducing IDH frequencies. However, there were no significant changes in other parameters other than IDH. In addition, hemocontrol high response patients had lower interdialytic BP and fewer amounts of ultrafiltration than low response patients.

Key Words: 혈액투석, 헤모컨트롤, 투석중 저혈압

Hemodialysis, Hemocontrol, Intradialytic hypotension

