

혈액 투석을 시행하는 말기 신부전증 환자에서 투석 방법에 따른 피부색의 변화

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Changes in Skin Color in Hemodialysis Patients According to Dialysis Modality

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Background: Several studies have demonstrated that the clearance of middle molecular weight (MMW) substances is better in high- flux hemodialysis (HF- HD) and online hemodiafiltration (HDF) compared to low- flux hemodialysis (LF- HD). Since skin hyperpigmentation, a common finding in end- stage renal disease (ESRD) patients, is known to be attributed to the accumulation of MMW substances such as urochromic pigments and carotenoids, there is a possibility that hyperpigmentation may be lightened by HF- HD and HDF. **Purpose:** This prospective study was undertaken to investigate the quantitative changes in skin color in HD patients according to dialysis modality.

Methods: Eighty- two stable ESRD patients undergoing regular HD at Yonsei University Health System were enrolled and randomly allocated to LF- HD, HF- HD, and HDF groups. Melanin and erythema indices of forearm and abdomen (non- sun exposed area) and forehead (sun exposed area) were measured by using narrow- band reflectance spectrophotometer (Mexameter MX16) at baseline and after 12 months. In addition, predialysis and postdialysis β 2- microglobulin (MG) levels were measured.

Results: β 2- MG reduction ratio was significantly higher in HDF (64.7 \pm 11.4%) and HF- HD (45.6 \pm 13.3%) groups compared to LF- HD group (8.5 \pm 8.9%) ($p < 0.01$). Even though there were no significant differences in the baseline values of melanin and erythema indices among the three groups, forehead melanin and erythema indices were significantly decreased in patients treated by HDF and HF- HD relative to LF- HD group (changes in melanin index; - 0.3 \pm 12.6, +1.0 \pm 13.7, and +8.1 \pm 7.9, respectively, $p < 0.05$, changes of erythema index; - 14.9 \pm 15.3, - 7.9 \pm 14.7, and - 1.1 \pm 15.2, respectively, $p < 0.05$). In contrast, the changes in melanin and erythema indices of forearm and abdomen were comparable among the three groups. **Conclusion:** The skin color of sun exposed area was lightened by HDF and HF- HD, suggesting that enhanced removal of MMW substances by convective therapy may be of advantage to skin hyperpigmentation in ESRD patients.

Key Words: 피부색, 고유량 혈액 투석, 혈액 여과 투석

Skin color, High- flux hemodialysis, Hemodiafiltration