

혈액 투석 중인 말기 신질환 환자에서 Intradialytic hypertension의 원인 및 사망률

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High Mortality and Etiology of Intradialytic Hypertension in Patients with End-stage Renal Disease on Maintenance Hemodialysis

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The prevalence of hypertension is 65-85% in patients beginning hemodialysis. Because hypertension results in cardiovascular complications in hemodialysis patients, it is a powerful predictor of death. Recently, intradialytic hypertension (IDH) is emerging as an important issue. In general, systolic blood pressure (SBP) decreases during hemodialysis. However, 15% of patients show an opposite trend in SBP; such a phenomenon is named IDH. Recent studies report that high mortality and morbidity rates of IDH, however, the definite cause of IDH has not been resolved.

We screened 109 adult ESRD patients in a single hemodialysis unit between June and September 2005. Thirty six patients were dropped out because of incomplete data or loss to follow-up. A total of 74 patients were divided into 2 groups: the IDH group and the non-IDH group. We used recently published literature to define IDH: (i) increase in post-dialytic SBP >10 mmHg compared with pre-dialytic SBP during at least 4 of 6 consecutive hemodialysis sessions and (ii) an absence of an intradialytic decline in SBP.

The IDH was prevalent in 15 patients (20.3%). The mean delta SBP (post-SBP minus pre-dialytic SBP) for 6 consecutive hemodialysis sessions was significantly high in the IDH group (-8.8 ± 10.7 vs. 13.1 ± 5.3 mmHg, $p=0.04$, Figure 1). The ultrafiltration volume was low in the IDH group, however, the ratio of the ultrafiltration volume to the interdialytic weight gain was not different between 2 groups (1.20 ± 0.34 vs. 1.18 ± 0.21 L/kg, $p=0.86$). Serum potassium was significantly low in the IDH group (5.3 ± 0.7 vs. 4.7 ± 0.6 , $p=0.002$, Table 2). As a nutritional marker, urea nitrogen, body mass index (BMI), arm muscle area (AMA), and normalized protein catabolic rate (nPCR) were significantly low in the IDH group (Table 2). Serum iron was significantly low, and erythropoietin requirement was significantly high in the IDH group (Table 2). The overall mortality was 2-fold higher in the IDH group (60% vs. 30.5%, $p=0.034$). IDH increases mortality of patients with end-stage renal disease on maintenance hemodialysis. Serum potassium, poor nutritional status, and anemia are associated with IDH. Clinicians must pay attention to IDH to reduce morbidity and mortality in hemodialysis patients.

Key Words: 투석 후의 혈압 상승, 혈액 투석, 사망률

Intradialytic hypertension, Hemodialysis, Mortality