

F-C7

## 지속적 신대체 요법을 시행하는 환자에서 수분 지수들의 관련성에 관한 연구

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### Relations of Volume Parameters in Continuous Renal Replacement Therapy

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**Background:** In critically ill patients, acute kidney injury (AKI) is common and these patients often suffer from concomitant fluid overload. The renal replacement therapy (RRT) is initiated for volume overload when management with fluid and diuretics is insufficient. In this setting, successful volume management depends on an accurate assessment of fluid status, adequate comprehension of the principles of ultrafiltration and clear treatment goals. In this study, we investigated the relationship of volume parameters in critically ill patients on continuous renal replacement therapy (CRRT).

**Methods:** Sixty AKI patients with CRRT over 72 hours (mean age 66±12 years) were enrolled. The volume status was determined by measuring the central venous pressure (CVP), cardiothoracic ratio (CT ratio) in chest x-ray finding as traditional volume marker and measuring the extracellular water (ECW)/total body water (TBW) by bioimpedance analysis, absolute diameter of inferior vena cava (IVCd) and IVC collapsible index defined as (IVCd in expiration - IVCd in inspiration)/IVCd in expiration in ultrasound. In patients with CRRT over 72 hours, follow-up volume parameters were measured and the difference between parameters of volume status at the initiation of CRRT and after 72 hours were calculated.

**Results:** Mean CVP, CT ratio, and ECW/TBW ratio were 9.33±4.99 mmH<sub>2</sub>O, 0.54±0.07%, and 0.415±0.013. Mean IVCd and IVC collapsible index were 1.72±0.27 cm and 33.9±15.0% at the initiation of CRRT. ECW/TBW ratio was positively correlated with IVCd ( $r=0.347$ ,  $p=0.015$ ) and CVP ( $r=0.279$ ,  $p=0.031$ ), and negatively correlated with IVC collapsible index ( $r=-0.393$ ,  $p=0.005$ ). IVC collapsible index was negatively correlated with CVP ( $r=-0.510$ ,  $p<0.001$ ). The mean difference between parameters of volume status at the initiation of CRRT and after 72 hours were 0.39±3.67 mmH<sub>2</sub>O, 0.01±0.04%, -0.001±0.010, -0.02±0.09 cm and -0.8±7.4% in CVP, CT ratio, ECW/TBW ratio, IVCd and IVC collapsible index.  $\Delta$  ECW/TBW ratio was positively correlated with  $\Delta$  IVCd ( $r=0.556$ ,  $p<0.001$ ) and negatively correlated with  $\Delta$  IVC collapsible index ( $r=-0.642$ ,  $p<0.001$ ).  $\Delta$  IVC collapsible index was negatively correlated with  $\Delta$  IVCd ( $r=-0.435$ ,  $p=0.002$ ).

**Conclusions:** IVCd, IVC collapsible index, and ECW/TBW ratio was significantly correlated with traditional volume parameters in CRRT patients.

**Key Words:** 지속적 신대체 요법, 급성 신손상, 부종

Continuous renal replacement therapy, Acute kidney injury, Edema