

## Red Blood Cell Distribution Width is an Independent Predictor of Mortality in Acute Kidney Injury Patients Treated with Continuous Renal Replacement Therapy

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**Background:** A potential independent association was recently demonstrated between high red blood cell distribution width (RDW) and the risk of all-cause mortality in patients with cardiovascular disease, although the mechanism remains unclear. However, there have been no reports on the relationship between RDW and mortality in acute kidney injury (AKI) patients treated with continuous renal replacement therapy (CRRT). In this study, we assessed whether RDW was associated with mortality in AKI patients on CRRT treatment in the intensive care unit (ICU).

**Methods:** We enrolled 470 patients with AKI who were treated with CRRT at the Yonsei University Medical Center ICU from August 2007 to September 2009 in this study. We performed a retrospective analysis of demographic, biochemical parameters, and patient outcomes. Following CRRT treatment, 28-day all-cause mortality was evaluated.

**Results:** At the initiation of CRRT treatment, RDW level was significantly correlated with white blood cell count (WBC), hemoglobin (Hb), and total cholesterol. Patients with high RDW levels exhibited significantly higher 28-day mortality rates than patients with low RDW levels ( $p < 0.01$ ). Baseline RDW level, Sequential Organ Failure Assessment (SOFA) score, low mean arterial pressure (MAP), and low cholesterol levels were independent risk factors for mortality. In multivariate Cox proportional hazard analyses, RDW at CRRT initiation was an independent predictor for 28-day all-cause mortality after adjusting for age, gender, MAP, hemoglobin, albumin, total cholesterol, C-reactive protein, and SOFA score.

**Conclusion:** Our study demonstrates that RDW could be an additive predictor for all-cause mortality in AKI patients on CRRT treatment in the ICU.

**Key Words:** Acute kidney injury, Continuous renal replacement therapy, Mortality predictor, Red blood cell distribution width