



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

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Shifting demographics and mortality outcomes in continuous kidney replacement therapy: a nationwide cohort study in South Korea

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Objectives : Despite growing CKRT utilization in aging populations, large-scale data on temporal trends and age-specific outcomes remain scarce. This study examined how CKRT utilization and associated mortality evolved over 15 years in South Korea, a country undergoing one of the most rapid demographic transitions globally.

Methods : We analyzed 209,260 patients aged ≥ 20 years who initiated CKRT between 2007 and 2021, identified from the Korean National Health Insurance Service database. Temporal trends in patient characteristics and mortality outcomes (in-hospital mortality, 1-year post-discharge mortality, and 3-year mortality among 1-year survivors) were systematically evaluated across four age groups (20–49, 50–64, 65–74, and ≥ 75 years).

Results : Over the study period, annual CKRT cases quadrupled from approximately 5,000 to 22,500. The patient population aged considerably, with mean age rising from 63.8 to 68.9 years and the proportion aged ≥ 75 years nearly doubling from 24.6% to 41.3%. Crude in-hospital mortality fell from 62% to 53%; however, multivariable-adjusted analyses revealed no significant improvement in mortality risk among patients aged ≥ 75 years, in contrast to the meaningful reductions observed in younger cohorts. Post-discharge mortality remained substantial throughout the study period (approximately 40–45% at 1 year; $\sim 30\%$ at 3 years among 1-year survivors), though adjusted post-discharge mortality risk declined over time without significant age-group interaction.

Conclusions : CKRT utilization in South Korea expanded substantially over the 15-year study period, with patients aged ≥ 75 years now comprising over 40% of all cases. Despite declining crude in-hospital mortality across all age groups, the absence of significant improvement in adjusted mortality risk among patients aged ≥ 75 years suggests that this trend may partly reflect expanded application of CKRT to less critically ill older patients rather than true clinical advancement. These findings underscore the importance of individualized decision-making and age-sensitive care frameworks for older patients receiving CKRT, with broader implications for healthcare policy in aging societies.