CONVECTIVE DIALYSIS REDUCES MORTALITY RISK: RESULTS FROM A LARGE OBSERVATIONAL, POPULATION-BASED ANALYSIS

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INTRODUCTION AND AIMS: According to many studies, extracorporeal dialysis with convective methods is associated with better clinical outcomes compared to diffusive techniques. However, there is no full agreement on the actual superiority of these replacement therapies on hard end-points such as mortality. We performed a retrospective epidemiological cohort study to provide “real-world” evidence on the impact of convective and non-convective techniques on all-cause and cardiac mortality and biochemical outcomes among dialysis patients in Sicily, an Italian region.

METHODS: Data of all incident adult patients (n=6529) who have started chronic extracorporeal dialysis over the period 2009-2015 were retrieved from the Sicilian Registry of Nephrology, Dialysis and Transplantation in respect of privacy and ethical standards. Survival analyses were performed by Kaplan-Meier method with log-rank test to compare survival curves. Missing values were replaced by multiple imputation method. Univariate Cox regression followed by multiple regression analyses based on models of increasing complexity were used to adjust the relationships between dialysis technique and all-cause and cardiac mortality. To further control for confounding by indication, a sensitivity analysis was performed by calculating the propensity score (PS) through logistic regression.

RESULTS: Patients receiving convective techniques were 1558 (23.86%). Overall mortality was 45.21%. The significant difference in cumulative survival probability between the two groups (P < 0.0001)
Cox-proportional hazards models were adjusted for age, sex, 12 comorbid conditions, and identify subsequent non-attendance.

METHODS: The variation in hospitalisation and mortality according to dialysis day of the week in a European cohort: further evidence of harm from the two-day break in three times a week HD persists in patients attending their HD regularly. In addition to this, further harm from the two day break is potentially manifested in the greater increase in mortality and hospitalisation observed after non-attendance for the first two-day break following compliant three times a week HD attendance, or if non-adherence to HD treatments. No studies have assessed the harm arising from the two-day break following compliant three times a week HD attendance.

RESULTS: The study included 1745 incident dialysis patients from the NECOSAD study. Of the 1745 dialysis patients, 1211 (69.4%) started with hemodialysis and 534 (30.6%) started with peritoneal dialysis. A total of 183 patients had a bleeding event during a median follow-up of 2.2 years (interquartile range 1.0-3.0), of which 13 were fatal. The incidence rate of bleeding within three years of follow-up was 52.3 per 1000 person-years for hemodialysis patients and 34.6 per 1000 person-years for peritoneal dialysis patients. The crude hazard ratio of bleeding was 2.2 (95% CI 1.4-3.4) for the convective group compared with the non-convective group. The protective effect of convective treatments was independent of potential confounders.

CONCLUSIONS: Our results further support the use of convective therapies for the treatment of end-stage renal disease.