Introduction and Aims: Extended daily dialysis (EDD) has been suggested as an effective renal replacement therapy for acute kidney injury (AKI). However, results from studies comparing EDD with continuous renal replacement therapy (CRRT) remain inconclusive.

Methods: We searched for relevant studies in Medline, Embase, the Cochrane Library, Google Scholar and Chinese database (SinoMed), as well as relevant references from January 1966 to August 2014. A systematic review and meta-analysis was performed of all eligible randomized controlled trials and observational studies comparing EDD with CRRT in patients with AKI. Mortality, kidney recovery, parameters and laboratory results during renal replacement therapy were measured. Relative risks (RR) or weighted mean differences (MD) with 95% confidence intervals (95% CI) were pooled using Review Manager 5.2.

Results: We included 17 studies through 2000 to 2014: seven randomized controlled trials (RCTs) and 10 observational studies involving 533 and 675 patients, respectively. Pooled analyses of RCTs showed no difference in mortality rate between EDD and CRRT (RR 0.90, 95%CI: 0.72 to 1.12, P =0.33). However, when all studies comparing EDD with CRRT were pooled (Fig. 2), EDD was associated with a lower risk for mortality compared with CRRT (RR 0.87, 95%CI: 0.78 to 0.98, P=0.02). There was no evidence of heterogeneity (\(\chi^2 =14.20, df =2, P =0.01\)). There were no significant differences in recovery of kidney function (p =0.52), fluid removal (p >0.15) and days in ICU (p =0.44). EDD showed similar efficacy to CRRT in laboratory results during treatment (serum urea, serum creatinine, serum phosphate) (P >0.05).

Conclusions: EDD is associated with similar outcomes to CRRT. The finding that EDD is associated with lower mortality rate largely relies on data from observational studies, which are potentially subject to allocation or selection bias making further high-quality RCTs desirable.

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