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Summary Report from 57th ERA-EDTA Virtual Congress

Dialysis in AKI: indications, timing, type and more

Presented by Wim Van Biesen

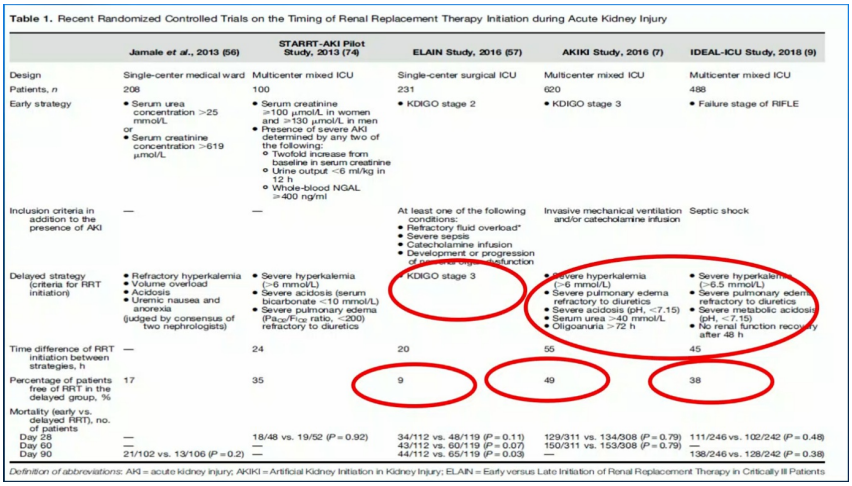

Table 1. Recent Randomized Controlled Trials on the Timing of Renal Replacement Therapy Initiation during Acute Kidney Injury

	Jamale *et al.*, 2013 (56)	STARRT-AKI Pilot Study, 2013 (74)	ELAIN Study, 2016 (57)	AKIKI Study, 2016 (7)	IDEAL-ICU Study, 2018 (9)
Design	Single-center medical ward	Multicenter mixed ICU	Single-center surgical ICU	Multicenter mixed ICU	Multicenter mixed ICU
Patients, *n*	208	100	231	620	488
Early strategy	• Serum urea concentration >25 mmol/L or • Serum creatinine concentration >619 μmol/L	• Serum creatinine ≥100 μmol/L in women and ≥130 μmol/L in men • Presence of severe AKI determined by any two of the following: ○ Twofold increase from baseline in serum creatinine ○ Urine output <6 ml/kg in 12 h ○ Whole-blood NGAL >400 ng/ml	• KDIGO stage 2	• KDIGO stage 3	• Failure stage of RIFLE
Inclusion criteria in addition to the presence of AKI	—	—	At least one of the following conditions: • Refractory fluid overload* • Severe sepsis • Catecholamine infusion • Development or progression of [illegible] dysfunction	Invasive mechanical ventilation and/or catecholamine infusion	Septic shock
Delayed strategy (criteria for RRT initiation)	• Refractory hyperkalemia • Volume overload • Acidosis • Uremic nausea and anorexia (judged by consensus of two nephrologists)	• Severe hyperkalemia (>6 mmol/L) • Severe acidosis (serum bicarbonate <10 mmol/L) • Severe pulmonary edema ($Pa_{O_2}/F_{I_{O_2}}$ ratio, <200) refractory to diuretics	KDIGO stage 3	• Severe hyperkalemia (>6 mmol/L) • Severe pulmonary edema refractory to diuretics • Severe acidosis (pH, <7.15) • Serum urea >40 mmol/L • Oliguranuria >72 h	• Severe hyperkalemia (>6.5 mmol/L) • Severe pulmonary edema refractory to diuretics • Severe metabolic acidosis (pH, <7.15) • No renal function recovery after 48 h
Time difference of RRT initiation between strategies, h	—	24	20	55	45
Percentage of patients free of RRT in the delayed group, %	17	35	9	49	38
Mortality (early vs. delayed RRT), no. of patients					
Day 28	—	18/48 vs. 19/52 ($P = 0.92$)	34/112 vs. 48/119 ($P = 0.11$)	129/311 vs. 134/308 ($P = 0.79$)	111/246 vs. 102/242 ($P = 0.48$)
Day 60	—	—	43/112 vs. 60/119 ($P = 0.07$)	150/311 vs. 153/308 ($P = 0.79$)	—
Day 90	21/102 vs. 13/106 ($P = 0.2$)	—	44/112 vs. 65/119 ($P = 0.03$)	—	138/246 vs. 128/242 ($P = 0.38$)

Definition of abbreviations: AKI = acute kidney injury; AKIKI = Artificial Kidney Initiation in Kidney Injury; ELAIN = Early versus Late Initiation of Renal Replacement Therapy in Critically Ill Patients

Is acute kidney injury the direct cause or merely a correlate of poor outcome in critically ill patients?

Critically ill patients who develop acute kidney injury (AKI) exhibit a notably higher mortality rate. Several clinical conditions, such as sepsis, nephrotoxins and hypotension, may cause AKI eventually resulting in fatal outcome. In such cases, it might seem that simply by managing AKI it would be possible to prevent or delay mortality. In practice, however, this is not always the case and AKI may sometimes simply be a confounding factor and not the direct cause of mortality.

Read more

Congress Presentation

This talk has been presented by Wim Van Biesen during the 57th ERA-EDTA Virtual Congress 2020.

View the Webcast

References

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