

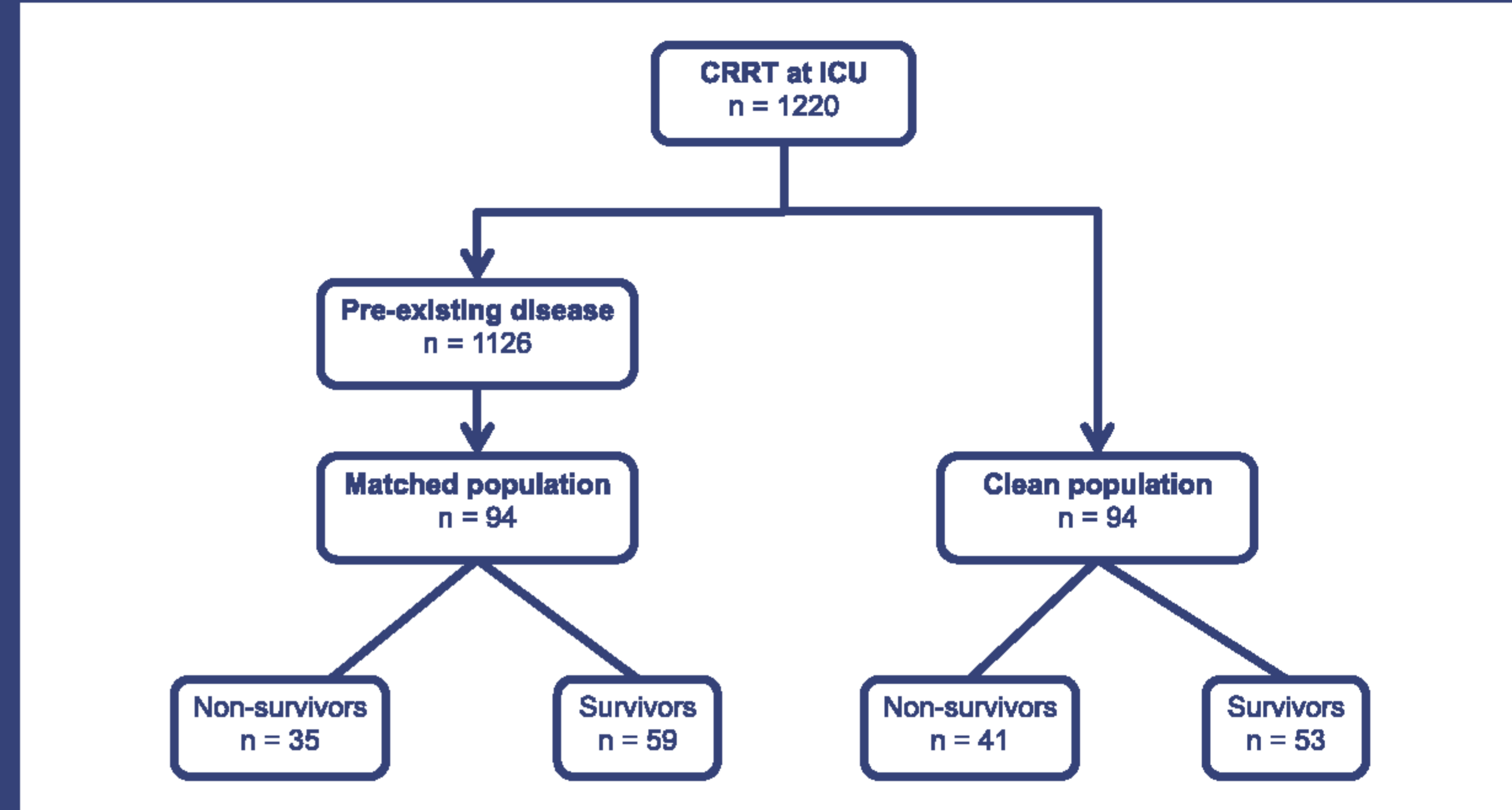


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Introduction

- Acute kidney injury (AKI) necessitating renal replacement therapy (RRT) in the critically ill is associated with an excessively high mortality and an increased risk for progression towards end stage renal disease (ESRD)
- However, it is unknown if this risk applies to all patients with AKI requiring RRT, especially to those with an unremarkable medical history prior to hospital admission
- This study describes the effects of AKI necessitating RRT in critically ill patients without pre-existing disease on mortality and renal survival
- We hypothesized that AKI has substantially less impact on mortality and renal survival in patients without pre-existing disease compared to those with pre-existing disease



Characteristics of study population

Sex (male)	52 (55.3)
Age (years)	45 (36 -60)
Cause of AKI	
•Sepsis	56 (59.6)
•Ischemia	23 (24.5)
•Drug-associated	8 (8.5)
•Other	7 (7.4)
Surgical/Medical (surgical)	64 (68.1)
Indication for ICU admission	
•Sepsis	36 (38.3)
•Post-operative	12 (12.8)
•Intoxication	9 (9.6)
•Trauma	29 (30.9)
•Other	9 (9.6)
RRT modality (CVVH)	55 (58.5)
Non-renal SOFA score	10 (8-13)
Serum creatinine (µmol/L)	
•Hospital admission	180 (96-375)
•Start of RRT	431 (306-571)
•Hospital discharge	69 (54-128)
Length of ICU stay (days)	22 (12-38)
Iodine-containing contrast fluid	1 (0-3)
Hospital mortality	41 (43.6)
RRT dependent at hospital discharge	2 (2.1)

Categorical variables are presented as number and percentage;
Continuous variables as median and interquartile range

Methods

- Retrospective cohort study
- All patients older than 18 years old admitted to the ICU that received continuous RRT (CRRT) were included
- Patients were categorized as patients with pre-existing disease versus without pre-existing disease (clean population)
- Patients in the clean population were randomly one-to-one matched (age and sex) to patients with pre-existing disease (matched population)

Multivariable logistic regression analysis

In-hospital mortality	Odds-ratio	p-value
Sex (male)	3.474	0.037
Serum creatinine at start of RRT	0.996	0.025
Length of ICU stay	0.965	0.021

eGFR ≤ 90 ml/min/1.73m ² at discharge	Odds-ratio	p-value
Age	1.097	0.043
ICU admission: post-operative	0.002	0.008
Serum creatinine at hospital admission	1.008	0.016
Iodine containing contrast fluid	0.454	0.009

Survival after hospital discharge (%)

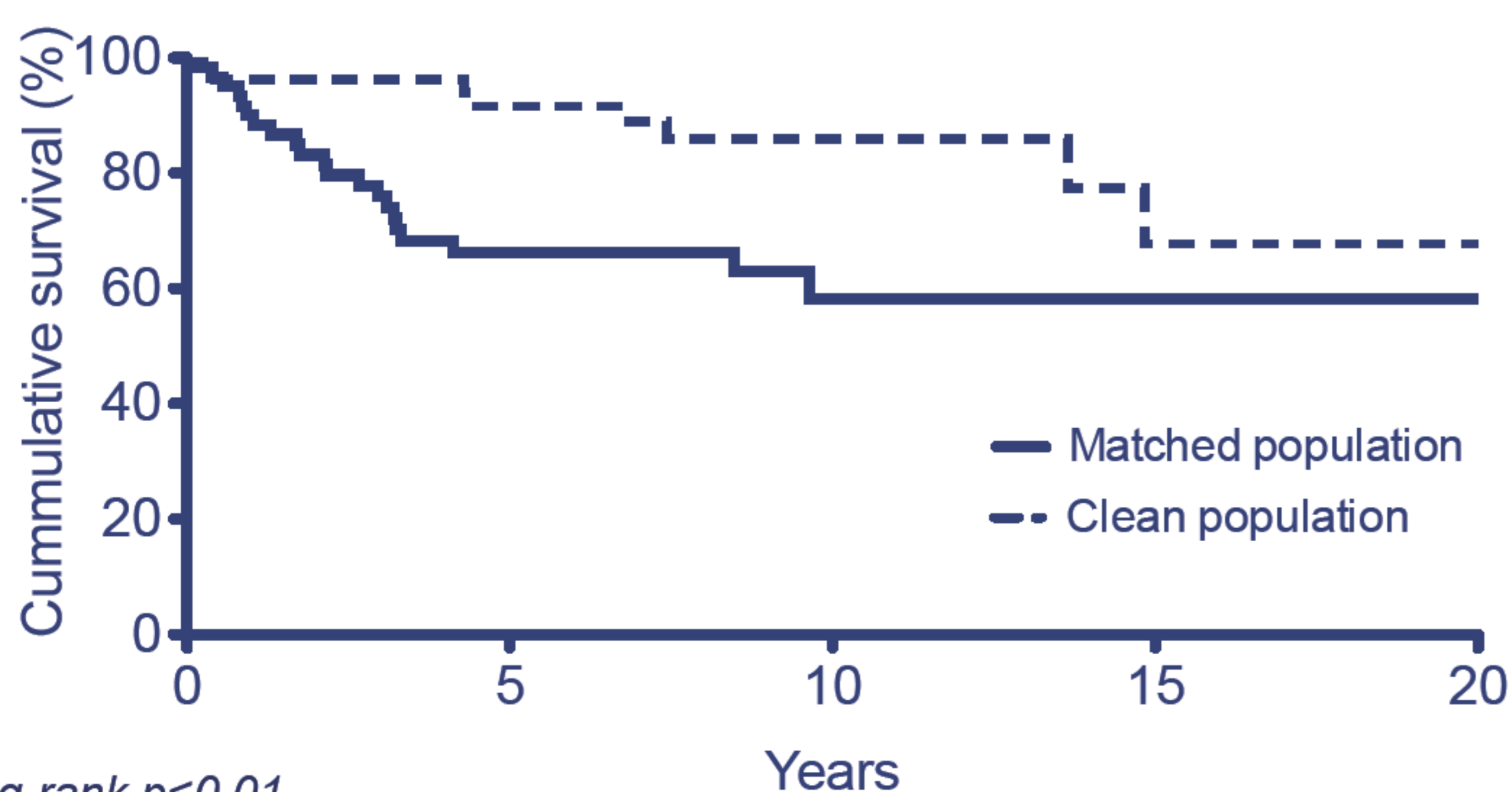
	1-year	5-year	10-year
Clean population	96.2	91.4	85.6
Matched population	89.8	65.7	57.0
Predicted in Dutch population*	99.5	96.6	92.6

*Adjusted for age and sex, provided by the Central Bureau of Statistics

Results

- Only 94 (7.7%) of all patients treated with CRRT in the ICU had an unremarkable medical history prior to hospital admission
- In-hospital mortality in the clean population was 43.6% versus 37.2% in the matched population
- 2 patients left the hospital RRT dependent
- 10-year survival after hospital discharge was 85.6% in the clean population which was 28.6% higher compared to the matched population and only 7% lower than the predicted survival in the Dutch population
- Besides the 2 patients that were RRT dependent at hospital discharge only 1 patient required chronic RRT after a follow-up of 7.5 years.

Survival after hospital discharge



Conclusions

- Patients with AKI requiring RRT without pre-existing disease have an equally high in-hospital mortality risk compared to those with pre-existing disease
- With a 10-year survival of 85.6% and 1 patient reaching ESRD requiring RRT after hospital discharge these patients have a good long-term prognosis
- These results are indicative that comorbidity and not the episode of AKI itself may be the major determinant of renal function and mortality after hospital discharge

