Influence of Socioeconomic Factors on the Initiation of RRT in Critically Ill Patients

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Background

In resource-limited settings, patient and clinician decisions to initiate renal replacement therapy (RRT) in severe acute kidney injury (AKI) may be influenced by economic constraints. Even when a patient meets the absolute criteria for RRT, treatment may be delayed or withheld entirely if costs are high, coverage is lacking, or the prognosis seems poor.

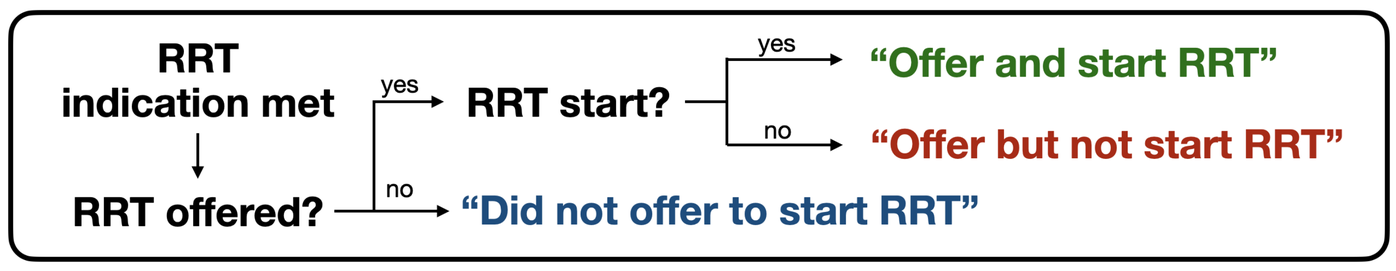
We examined how a patient's income level might influence the likelihood of actually starting RRT once it has been offered.

Methods

InSEARRT registry
Adult ICU with stage 3 AKI
from 24 hospital in SEA & India

Q1
Q2
Q3
Q4

Each patient's self-reported average household income was recorded and stratified into quartiles



RRT discordance rates, reasons, and 28-d mortality were compared across quartiles

Results

A total of 1,670 ICU patients with stage 3 AKI were analyzed. Median household income rose from USD 288 (IQR 252–360) in Q1 to USD 5,400 (IQR 4,500–6,000) in Q4. **Overall, the leading reason for non-initiation was considered futility by healthcare providers (30.9-44.7%) in most quartiles.** Q2 showed the highest rate of pending consent (30.9%), while Q4 had more cases of anticipated renal recovery (21.3%). Potential renal recovery accounted for 8–27% of non-start decisions across quartiles.

Patients who were offered but did not start RRT had consistently higher 28-day mortality across all income quartiles compared with those who initiated RRT, with an overall mortality of 62.3% in the cohort. In those offered and started RRT, **RRT modality varied by income.** Q1 and Q2 relied heavily on intermittent hemodialysis (49.2% and 65.8%) with fewer CRRT days (27.3% and 10%). **In Q4, CRRT predominated (67.7%),** suggesting greater resource availability and potentially different initiation thresholds.

Quartile of Self-reported average household income	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Range of quartile (USD)	(29.999, 600.0]	(600.0, 2160.0]	(2160.0, 4392.0]	(4392.0, 10080.0]
N	441	412	401	416
Age (mean, SD)	67.8 (15.5)	57.2 (15.7)	54.6 (15.7)	62.8 (17.1)
Income (median, IQR)	288 (252-360)	1500 (900-1800)	300 (2880-3600)	5400 (4500-6000)
Reimbursement type (%)				
Universal coverage	286 (64.9%)	315 (76.5%)	324 (80.8%)	157 (37.7%)
Social security system	48 (10.9%)	56 (13.6%)	23 (5.7%)	42 (10.1%)
Government / State enterprise	75 (17.0%)	36 (8.7%)	50 (12.5%)	185 (44.5%)
Selfpay / Others	32 (7.3%)	5 (1.2%)	4 (1.0%)	32 (7.7%)
Cause of admit (Top3, %)	Pulmonary 118 (26.5%)	Pulmonary 102 (24.7%)	Pulmonary 101 (25.1%)	Cardiovascular 133 (31.7%)
	Cardiovascular 85 (19.1%)	Gastro-intestinal 72 (17.7%)	Cardiovascular 68 (16.9%)	Pulmonary 72 (17.2%)
	Gastro-intestinal 53 (11.9%)	Cardiovascular 61 (14.7%)	Gastro-intestinal 43 (10.7%)	Systemic infection 56 (13.4%)
Cause of AKI (Top3 ,%)	Sepsis 181 (40.6%)	Sepsis (33.9%)	Multifactorial 150 (37.3%)	Multifactorial 165 (36.4%)
	Multifactorial 139 (31.2%)	Multifactorial (33.7%)	Sepsis 135 (33.6%)	Pre-renal/Ischemic ATN 153 (36.5%)
	Pre-renal/Ischemic ATN 102 (22.9%)	Pre-renal/Ischemic ATN (21.8%)	Pre-renal/Ischemic ATN (107 (26.6%)	Sepsis 92 (22%)
SOFA (mean, SD)	9.44 (3.76)	9.12 (3.7)	9.96 (3.85)	11.2 (4.2)
APACHE II (mean, SD)	23.19 (8.55)	20.97 (8.05)	22.83 (8.34)	23.18 (8.45)
Offered but not start RRT (%)	102 (26.1%)	97 (22.8%)	109 (26.8%)	47 (11.1%)
Reason not start (Top 3)	Considered futile by healthcare providers 45 (44.1%)	Pending for consent 30 (30.9%)	Considered futile by healthcare providers 43 (39.4%)	Considered futile by healthcare providers 21 (44.7%)
	Pending for consent 18 (17.6%)	Considered futile by healthcare providers 29 (29.9%)	Potential renal recovery 29 (26.6%)	Potential renal recovery 10 (21.3%)
	Potential renal recovery 13 (12.7%)	Potential renal recovery 8 (8.2%)	Pending for consent 9 (8.3%)	Died before dialysis could be initiated 4 (8.5%)
28-day Mortality rate ((%)	69 (67.6%)	57 (58.8%)	64 (58.7%)	31 (66%)
Offer and start RRT (%)	187 (39.3%)	231 (41.3%)	188 (38.8%)	328 (46.7%)
RRT Mode (%)	IHD 92 (49.2%)	IHD 152 (65.8%)	IHD 114 (60.6%)	CRRT 222 (67.7%)
	CRRT 51 (27.3%)	PD 32 (13.9%)	CRRT 40 (21.3%)	SLED 56 (17.1%)
	SLED 26 (13.9%)	SLED 24 (10.4%)	PD 18 (9.6%)	IHD 39 (11.9%)
	PD 18 (9.6%)	CRRT 23 (10%)	SLED 16 (8.5%)	PD 11 (3.6%)
28-day Mortality rate ((%)	93 (49.7%)	99 (42.9%)	93 (49.5%)	168 (51.2%)
Did not offer to start RRT (%)	152 (34.5%)	84 (20.4%)	104 (25.9%)	41 (9.9%)
28-day Mortality rate ((%)	65 (42.76%)	24 (28.6%)	42 (40.4%)	15 (36.6%)

Conclusions

- Patient income level was associated with differences in RRT initiation when absolute indications were present.
- Higher-income patients had the lowest non-initiation rate and were more likely to receive CRRT, while Lower-income groups rely more on intermittent hemodialysis.
- These findings underscore the role of socioeconomic factors in critical care decision-making and highlight opportunities to address inequities in access to life-saving therapies.

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