THE KOREAN SOCIETY OF NEPHROLOGY
APCN & KSN 2024
June 13(Thu) - 16(Sun), 2024 Coex, Seoul, Korea
Promoting Sustainable Kidney Health: The Asia-Pacific and Beyond

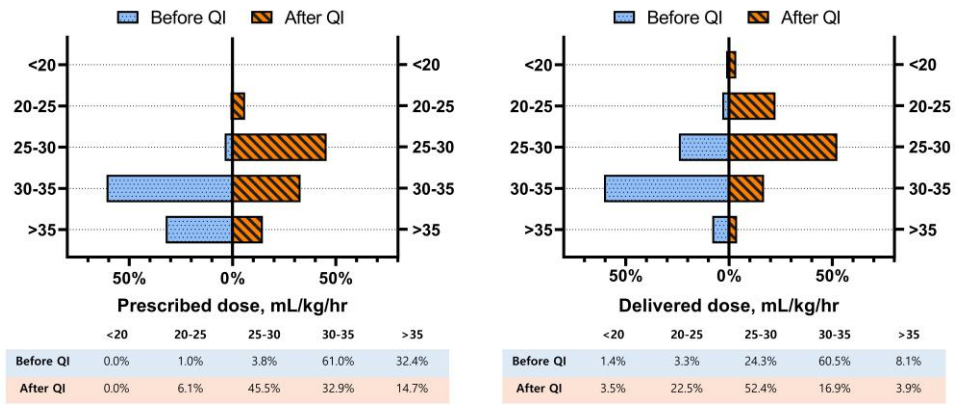
Abstract Submission No.: A-0659

Optimizing CKRT dose prescription, as the first step for green nephrology

Taeil Kim, Harin Rhee
Department of Internal Medicine-Nephrology, Pusan National University Hospital, Korea, Republic of

Objectives : Kidney Disease Improving Global Outcomes (KDIGO) recommends a continuous kidney replacement therapy (CKRT) dose of 20-25 mL/kg/h. However, in South Korea, the dose of CKRT is usually higher than 30-35 mL/kg/h. Unnecessarily high dose increases water waste. Therefore, our center conducted a quality improvement initiative (QI) to deliver an appropriate dose of CKRT.
Methods : This is a single-center, prospective pilot study conducted from 1 May to 31 December 2023 including 441 patients. The CKRT prescription dose was adjusted from the previous 35 mL/kg/hr to 25-30 mL/kg/hr, with a target actual delivered dose of 20-25 mL/kg/hr. The primary outcome was the proportion of patients with an actual delivered dose of 20-25 mL/min/kg, and the secondary outcomes were changes in daily water use per person and in-hospital mortality before and after QI.
Results : Before QI (N=210), the mean prescribed dose of CKRT was 34.4 mL/kg/hr, almost 90% of which was actually delivered, and the mean amount of water used per person was 53.6±16.9 L/day. During the QI periods, 105 out of 231 (45.5%) were prescribed a CKRT dose between 25 and 30 mL/kg/hr, the median actually delivered dose was reduced to 27.4 mL/kg/hr (P<0.001), and 52 cases (22.5%) achieved an average dose of 20 to 25 mL/kg/hr. After QI (N=231), the daily use of dialysate or replacement soloution bags decreased from 10.7 bags to 9.4 bags, a reduction of approximately 1.3 bags per day (P<0.001), and water volume was reduced by 12.7%, equivalent to 6.8 liters per day (46.8±15.1 L/day, P<0.001). There was no difference in in-hospital mortality before and after the QI period.
Conclusions : By reducing the CKRT dose to the KDIGO recommended level, we were able to reduce water use by 12.7%, which is 6.8 liters per day for each patient, with no additional harm to the patients receiving CKRT.

Figure1.jpg



	<20	20-25	25-30	30-35	>35
Before QI	0.0%	1.0%	3.8%	61.0%	32.4%
After QI	0.0%	6.1%	45.5%	32.9%	14.7%

	<20	20-25	25-30	30-35	>35
Before QI	1.4%	3.3%	24.3%	60.5%	8.1%
After QI	3.5%	22.5%	52.4%	16.9%	3.9%

Figure1.jpg

	Before QI (N=210)	After QI (N=231)	P
Basic characteristics			
Age	66.4±13.9	68.4±13.8	0.130
Male	147 (70.0%)	150 (64.9%)	0.257
HTN	110 (52.4%)	141 (61.0%)	0.067
DM	99 (47.1%)	129 (55.8%)	0.068
ESKD	36 (17.1%)	46 (19.9%)	0.455
Critical care resources			
Ventilator	123 (58.6%)	140 (60.6%)	0.664
Inotropics	134 (63.8%)	153 (66.2%)	0.594
Cause of AKI			
Sepsis	14 (6.9%)	14 (6.2%)	0.759
Post OP	38 (18.1%)	30 (13.0%)	0.138
Outcomes			
P.dose, mL/kg/hr	34.4±3.3	30.9±5.2	<0.001*
D.dose, mL/kg/hr	31.1±3.8	27.4±4.1	<0.001*
Death	100 (47.6%)	113 (48.9%)	0.785
Death in ICU	101 (48.1%)	108 (46.8%)	0.778
Death during CKRT	94 (44.8%)	98 (42.4%)	0.621
Dialysate per day, n/d	10.7±3.4	9.4±3.0	<0.001*
Dialysate per day, L/d	53.6±16.9	46.8±15.1	<0.001*
Filter per day, n/d	0.8±0.4	0.7±0.3	0.038*
Hospital day	34.6±50.6	25.4±27.6	0.022*
ICU day	12.9±14.4	12.5±13.7	0.764
CKRT day	6.8±7.6	5.8±5.6	0.120
Total CKRT time, hr	135.8±187.8	111.2±134.1	0.118
Actual CKRT time, hr	130.3±181.4	107.5±129.7	0.135
Down time, hr	5.4±8.0	4.2±7.1	0.101