

Hypophosphatemia in Critically Ill Patients Undergoing Prolonged Intermittent vs. Prolonged Intermittent-Sequential Kidney Replacement Therapy



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Introduction

Critically ill patients requiring kidney replacement therapy are at risk for developing hypophosphatemia, particularly with continuous, prolonged or frequent dialysis. We compared the incidence of hypophosphatemia between prolonged intermittent (PIKRT) and prolonged intermittent-sequential (PIKRT-S) kidney replacement therapies.

Methods and Materials

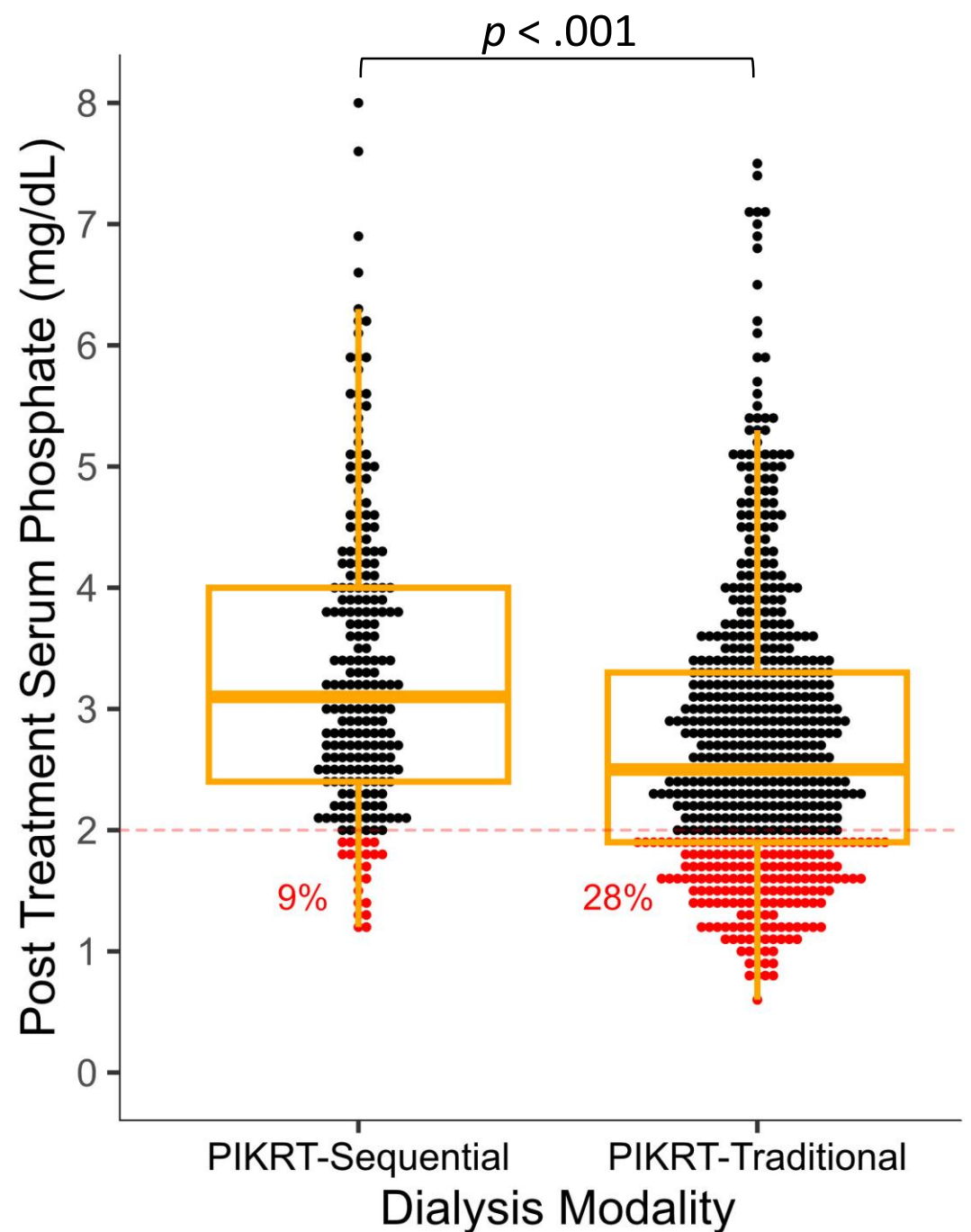
Retrospective study of critically ill patients who were prescribed dialysis treatments between 6 and 18 hours. Traditional PIKRT was performed using diffusion based therapy for the duration of the treatment, whereas PIKRT-S consisted of diffusion based dialysis for 4 hours followed by ultrafiltration only for the remainder of the treatment.

Results

There were 868 post dialysis serum phosphate measurements; the median was 2.7 (2.0-3.6) mg/dL. The incidence of severe hypophosphatemia was 199/868 (23%); 28% (177/868) occurred in the PIKRT group and 9% (22/868) in the PIKRT-S group ($p < .001$).

Conclusions

Incidence of severe hypophosphatemia was much lower with PIKRT-S vs PIKRT in the current study. PIKRT-S should be considered as an alternative to PIKRT modality in patients at high risk for hypophosphatemia.



	PIKRT(n=625)	PIKRT-S(n=243)	P value
Pre-BUN	45 (29-68)	45 (28-65)	.56
Post-BUN	24 (16-37)	36 (24-46)	< .001
Dialysis duration			< .001
6 hours	437 (70%)	108 (49%)	
8 hours	94 (15%)	26 (12%)	
> 8 hours	89 (15%)	87 (39%)	
Blood flow rate			< .001
200 ml/min	410 (66%)	104 (47%)	
300 ml/min	213 (34%)	117 (53%)	
Dialysate flow rate			< .001
200 ml/min	361 (58%)	70 (32%)	
300 ml/min	246 (39%)	148 (67%)	