

**Abstract Type : Poster exhibition****Abstract Submission No.: A-0809****Abstract Topic : Dialysis**

Exploring the Effectiveness of Acute Incremental Peritoneal Dialysis Case Management on Cardiorenal Syndrome

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Case Study : Background Cardiorenal syndrome is frequently observed in patients with concomitant heart failure and chronic kidney disease, often requiring urgent initiation of renal replacement therapy. Incremental peritoneal dialysis (PD), characterized by a stepwise increase in dialysis volume, may reduce physiological burden and enhance patient adaptation during the acute phase. This study aimed to evaluate the clinical outcomes of urgent-start incremental PD combined with case management and to explore the experiences of patients and family caregivers. Methods This qualitative study included patients who initiated PD within 24–72 hours after catheter insertion and subsequently transitioned to routine therapy. Has never undergone hemodialysis. Six patients and six primary family caregivers were enrolled. Data collection included semi-structured interviews, biochemical indicators, and retrospective review of medical and nursing records. Thematic content analysis was applied to identify major care needs and adaptation experiences. Results Following case-management intervention and incremental PD, improvements were observed in creatinine, BUN, and and stable Kt/V. One case demonstrated an improvement in ejection fraction from 27% to 45%, and notable enhancement in cardiac function (EF) after incremental PD . All patients remained clinically stable without catheter leakage or procedure-related complications and successfully transitioned to long-term PD. Thematic analysis identified five domains: emotional reactions to initiating PD, caregiver burden, challenges in mastering exchange techniques, physical adaptation, and needs for care coordination and informational support. Conclusion Urgent-start incremental PD combined with structured case management enhances treatment acceptance, reduces anxiety, improves technical confidence, and supports a safe transition to long-term PD in patients with cardiorenal syndrome. The findings suggest favorable clinical feasibility, warranting larger multi-center studies to further validate long-term outcomes.

Table 1. Trends .jpg

Table 1. Trends in Biochemical and Clinical Improvements¹⁾

Case ID	Gender	Age	Residual Renal Function	Kt/V	Complication Type	Creatinine (mg/dL)		BUN (mg/dL)		EF% (Echocardiogram report)	
						Dialysis		Dialysis		Dialysis	
						Before	After	Before	After	Before	After
1 ²⁾	Male ³⁾	68 ⁴⁾	Yes ⁵⁾	2.36 ⁶⁾	None ⁷⁾	4.29 ⁸⁾	2.25 ⁹⁾	129 ¹⁰⁾	68 ¹¹⁾	27 ¹²⁾	45 ¹³⁾
2 ¹⁴⁾	Female ¹⁵⁾	87 ¹⁶⁾	Yes ¹⁷⁾	1.86 ¹⁸⁾	None ¹⁹⁾	4.0 ²⁰⁾	3.66 ²¹⁾	28 ²²⁾	17 ²³⁾	64 ²⁴⁾	43 ²⁵⁾
3 ²⁶⁾	Female ²⁷⁾	88 ²⁸⁾	Yes ²⁹⁾	1.98 ³⁰⁾	None ³¹⁾	10.66 ³²⁾	7.68 ³³⁾	146 ³⁴⁾	68 ³⁵⁾	58.1 ³⁶⁾	71.3 ³⁷⁾
4 ³⁸⁾	Female ³⁹⁾	80 ⁴⁰⁾	None ⁴¹⁾	1.71 ⁴²⁾	None ⁴³⁾	6.61 ⁴⁴⁾	6.45 ⁴⁵⁾	122 ⁴⁶⁾	64 ⁴⁷⁾	64 ⁴⁸⁾	* ⁴⁹⁾
5 ⁵⁰⁾	Male ⁵¹⁾	69 ⁵²⁾	Yes ⁵³⁾	1.9 ⁵⁴⁾	None ⁵⁵⁾	7.68 ⁵⁶⁾	6.13 ⁵⁷⁾	112 ⁵⁸⁾	79 ⁵⁹⁾	57 ⁶⁰⁾	69 ⁶¹⁾
6 ⁶²⁾	Male ⁶³⁾	87 ⁶⁴⁾	Yes ⁶⁵⁾	1.92 ⁶⁶⁾	None ⁶⁷⁾	8.49 ⁶⁸⁾	6.81 ⁶⁹⁾	82 ⁷⁰⁾	68 ⁷¹⁾	55 ⁷²⁾	59 ⁷³⁾

Table 1. Trends .jpg



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Table 2 : Thematic map⁴²⁾

Themes ⁴²⁾	codes ⁴²⁾	Patient / Family (Description) ⁴²⁾
Emotional Reactions ⁴²⁾	Anxiety, fear, and stress when initiating peritoneal dialysis for the first time ⁴²⁾	Patient: "I was very nervous. The wound still hurts, and I don't know what will happen after dialysis." ⁴²⁾
		Family: "The patient looks tired and eats poorly. Is it safe to start dialysis?" ⁴²⁾
Roles and Caregiving Burden ⁴²⁾	Stress faced by primary caregivers and the need for support ⁴²⁾	Patient: "My vision is blurry and I cannot align the connection properly. My wife can help, but I also need to learn." ⁴²⁾
		Family: "The patient must learn self-care. Equipment at home is different from the hospital. I don't know what supplies to prepare or where to get the dialysis bags." ⁴²⁾
Technical Challenges ⁴²⁾	Difficulties with dialysis exchange techniques, sterile procedures, and fear of mistakes ⁴²⁾	Patient: "When doing exchanges at home, what should I do if something goes wrong?" ⁴²⁾
		Family: "I can't remember all the steps. I forgot to vent the air and made mistakes but didn't know what went wrong." ⁴²⁾
Physical Adaptation Process ⁴²⁾	Abdominal fullness, fatigue, and physical changes during adaptation ⁴²⁾	Patient: "After dialysis I'm less swollen, the ammonia taste is gone, and my body feels lighter and more comfortable." ⁴²⁾
		Family: "The patient's abdomen becomes larger when the dialysate is infused." ⁴²⁾
Information and Process Support ⁴²⁾	Need for educational materials, manuals, and case-management assistance ⁴²⁾	Patient: "Pictures and videos help. The more I practice exchanging bags, the better I get." ⁴²⁾
		Family: "During showers we used a stoma bag, but we couldn't place the catheter inside properly or figure out how to tape it." ⁴²⁾

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