

# INTENSIVE VERSUS MINIMAL STANDARD DOSAGE FOR PERITONEAL DIALYSIS IN ACUTE KIDNEY INJURY, RANDOMIZED PILOT STUDY

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## OBJECTIVES

Dosage for peritoneal dialysis (PD) in acute kidney injury (AKI) is controversial. This study aims to find benefits and risks of intensive versus minimal standard dosage of PD in AKI.

## METHODS

In a tertiary-hospital, 93 AKI patients who required PD between May 2015 to January 2016 were enrolled in a randomized, open-label controlled study. Patients were randomized to intensive group (> 30 L) and minimal standard group (< 20 L) of PD volume per day for first 2 consecutive days. The primary outcome was in-hospital mortality. The secondary outcomes were peritonitis rate, dialysis dependence, and PD leakage.

TABLE 1  
Baseline Data

	Intensive (n=39)	Minimal (n=36)	P
Age (SD)	56 (12.5)	62 (14.6)	0.08
Female (%)	21 (54%)	15 (42%)	0.09
BMI (SD)	23.2 (0.3)	24 (0.2)	0.27
Weight (SD)	59.6 (8.7)	60.8 (11.6)	0.60
DM (%)	11 (28%)	15 (42%)	0.24
Septic ATN (%)	34 (87%)	29 (81%)	0.28
Urine (mL/kg/h) (IRQ)	13 (3-31)	10 (2-27)	0.46
APACHE II (SD)	26.9 (5.1)	25.7 (4)	0.28
Inotropic drug (%)	28 (72%)	24 (67%)	0.49
Ventilator (%)	34 (87%)	32 (89%)	0.95
Indication for dialysis			
Volume overload	15 (38%)	14 (39%)	0.96
Metabolic acidosis	18 (46%)	12 (33%)	0.21
Uremia	7 (18%)	10 (28%)	0.33
Hyperkalemia	6 (15%)	6 (17%)	0.91
Lab at start dialysis (SD)			
BUN (mg/dL)	75.1 (42.8)	78 (31.1)	0.77
Cr (mg/dL)	4.74 (2.4)	5.77 (2.6)	0.13
Albumin (g/dL)	2.5 (0.6)	2.8 (0.6)	0.11
Hct (%)	29.5 (8.1)	30.1 (8.1)	0.78
K <sup>+</sup> (mEq/L)	4.9 (1.2)	4.8 (0.9)	0.63
HCO <sub>3</sub> (mEq/L)	15.3 (7.2)	15.5 (7.2)	0.91
Anion Gap (mEq/L)	19.2 (13.7,30.1)	21.6 (15.4,24.9)	0.5

SD = standard deviation; BMI = body mass index; DM = diabetes mellitus; ATN = acute tubular necrosis; IRQ = interquartile range; BUN = blood urea nitrogen; Cr = creatinine; Hct = hematocrit; K = potassium; HCO<sub>3</sub> = bicarbonate.

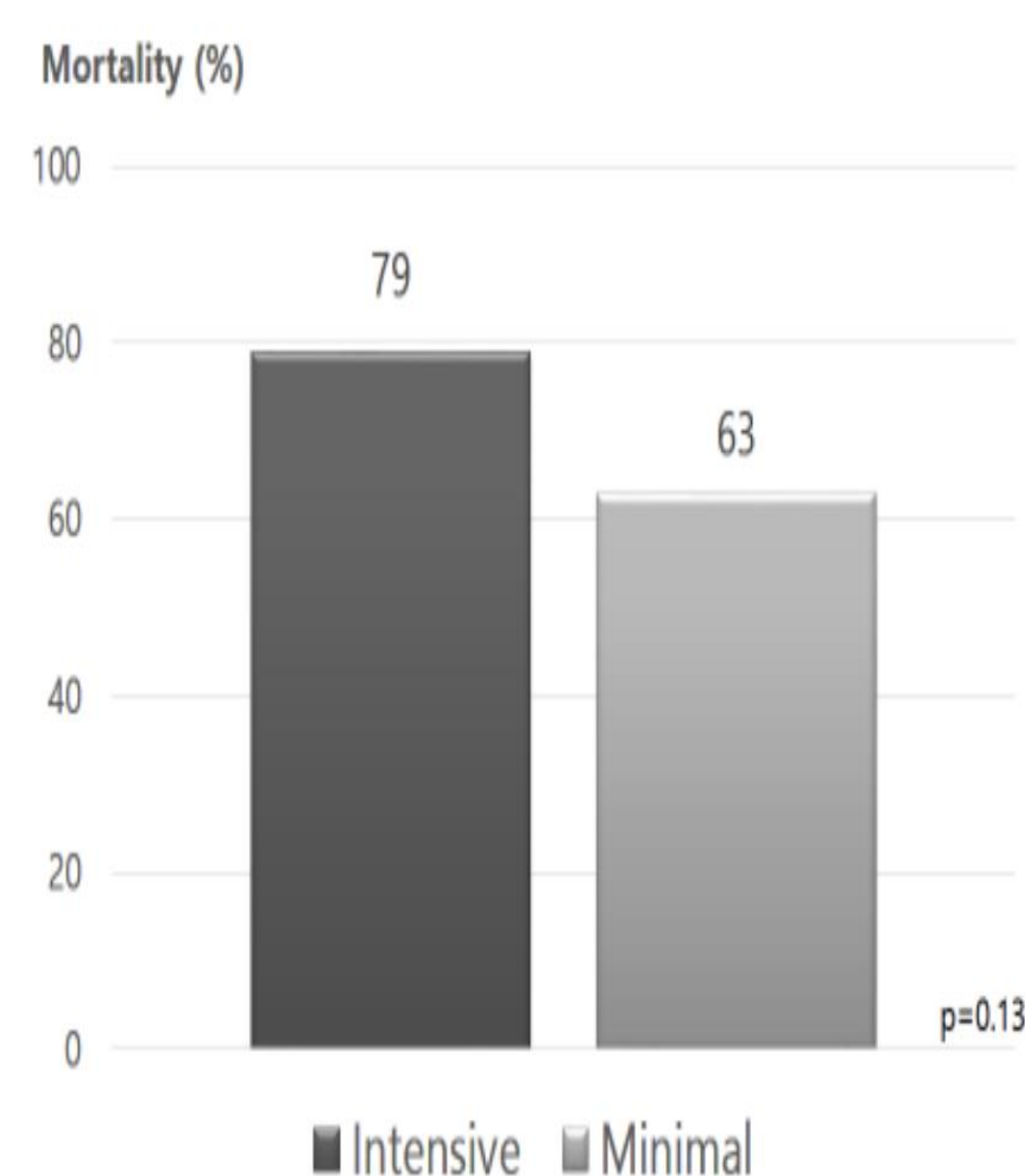


Figure 2 - In-hospital mortality rate between intensive and minimal standard group.

TABLE 3  
Secondary Outcomes and Complications

	Intensive (n=39)	Minimal (n=36)	P
Dialysis dependent n (%)	1 (2.6%)	3 (8.3%)	0.26
Length of stay, day median (IRQ)	9 (3,23.5)	9 (4,22)	0.96
Acute PD session, median (IRQ)	4 (2,11.5)	5 (2,8)	0.97
Complication:			
Peritonitis, n (%)	6 (15.3%)	3 (8.3%)	0.34
Leakage, n (%)	1 (4%)	1 (4%)	0.95

IRQ = interquartile range; PD = peritoneal dialysis.

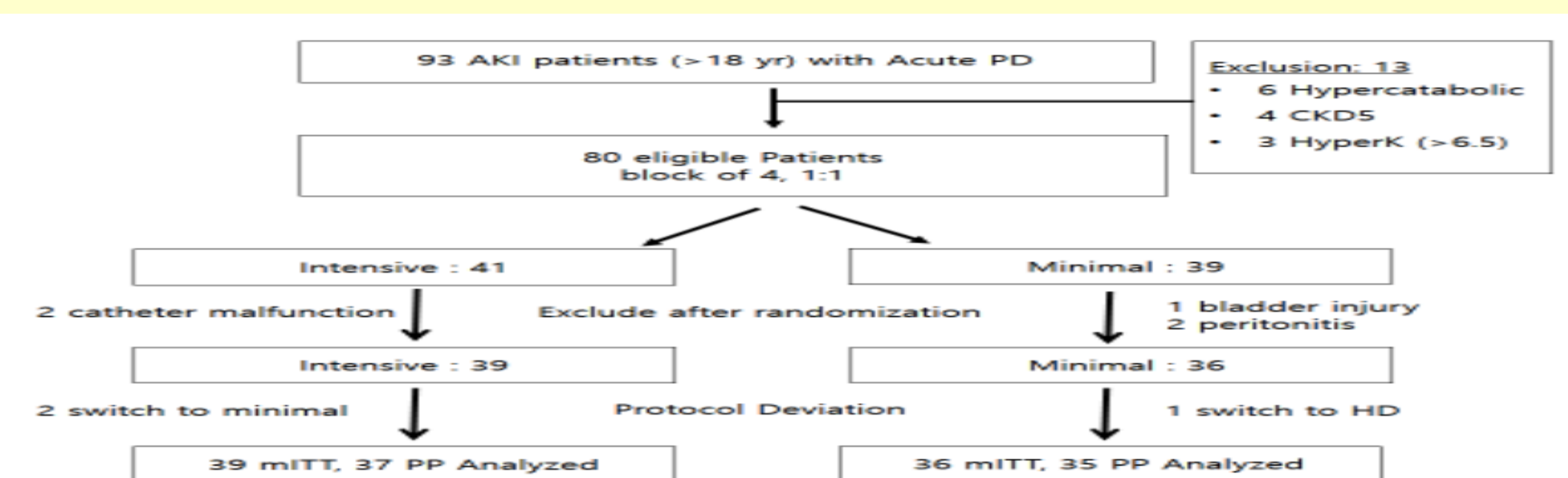


Figure 1 - Study flow as CONSORT Statement. AKI = acute kidney injury; PD = peritoneal dialysis; CKD5 = chronic kidney disease stage V; hyperK = hyperkalemia; HD = hemodialysis; mITT = modified intention to treat analysis; PP = per protocol analysis.

## RESULTS

Seventy-five patients were analyzed (intensive PD  $n = 39$ ; minimal standard PD  $n = 36$ ). Mean age was 60 years. Most patients were in critical care (72% unstable hemodynamic, mean APACHE II score 26.2). Kt/V delivery per session was 0.61 and 0.38 in intensive and minimal standard PD dosage for the first 2 consecutive sessions. According to intention-to-treat analysis, in the in-hospital mortality rate of intensive PD dosage was not significantly different from the minimal standard PD dosage (79% vs 63%, relative risk [RR] 1.11, 95% confidence interval [CI] 0.80 to 1.51,  $p = 0.13$ ). Dialysis dependence rate and PD leakage were not significantly different between both groups. Rate of PD peritonitis was slightly higher in the intensive PD dosage group (15.3% vs 8.3%,  $p = 0.34$ ).

## CONCLUSIONS

Among AKI patients who required PD, there was no significant difference in in-hospital mortality between intensive and minimal standard PD dosage.

## REFERENCES:

- Gabriel DP, Caramori JT, Martim LC, Barretti P, Balbi AL. High volume peritoneal dialysis vs daily hemodialysis: a randomized, controlled trial in patients with acute kidney injury. *Kidney Int Suppl* 2008; (108):S87-93.
- Ponce D, Brito GA, Abrão JG, Balb AL. Different prescribed doses of high-volume peritoneal dialysis and outcome of patients with acute kidney injury. *Adv Perit Dial* 2011; 27:118-24.

