

Combination Of Peritoneal Dialysis And Hemodialysis- A Single Center Experince

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I. Introduction

The advantage of peritoneal dialysis (PD) is its continuous nature of fluid and solute removal, with continuous sodium removal causing reduced thirst and fluid intake, thus helping with balancing fluid status¹. The steady nature of this process likely preserves residual renal functions, which in turn has a bearing on mortality². Although PD is known to work in anuric patients, it comes at a cost of larger dose (increased volumes, no dry time), which in turn exposes the peritoneal membrane to glucose related degradation, ultimately hastening its inability to sustain PD over prolonged periods and besides exposing it to the risk of encapsulating peritoneal fibrosis. This led to the exploration of combination therapy in situations where it was felt that increasing the dose of peritoneal dialysis would be required to ensure effective dialysis. Normally, when patients lose residual renal functions, migrating to hemodialysis (HD) is the norm. However, combination therapy maintains the advantages of PD in terms of continuous treatment, while eliminating the dangers associated with increased exposure to glucose products, by substituting with HD. This was demonstrated in Japan in 1995³, United States of America⁴ and United Kingdom⁵.

We hereby discuss six cases in our center, where the combination therapy was used, their indications and follow up.

II. Materials And Methods

This was a retrospective study, wherein the charts of the patients who underwent PD from February 2018 to May 2023 were studied. PD was of two kinds-Automated PD(APD) and continuous ambulatory PD(CAPD) or APD with an extra bag filled in the morning. The kinds of solution used for APD were 1.36, 2.27% Dextrose (both of 5- and 10-liter capacity) and Extraneal (7.5% polymer), of 2liter capacity.

Those who underwent combination therapy were shortlisted for the study. HD (hemodialysis) was performed using a high flux membrane and bicarbonate dialysate. Clinical and biochemical parameters before and during the combination therapy and the follow ups were assessed. The weekly dialysis dose in combination therapy was determined by using the Casino and Lopez formula to determine the equivalent urea clearance⁶. The calculated HD dose is converted to a weekly treatment value and added to the calculated PD dose of 6 days. Statistical analysis was done using unpaired 2 tailed student T test.

III. Results

The average duration of PD preceding the introduction of the combination therapy was 11.16 months. Four patients were on APD and two on CAPD (one patient using 4 bags -1.36 and 2.27% glucose concentrate, and the other used 2 bags of extraneal per day). The reasons for initiating combination therapy were inadequate solute clearance as judged by the clinician in 4 patients, fluid overload of any reason in 1 patient (reason being severe LV dysfunction), solute and fluid removal inadequacy in 1 patient and inability to increase PD dose due to right hydrothorax in 1 patient. The schedule followed in all was 6 days of PD and 1 day of HD, with the PD being stopped on the day of the HD. HD was done in- center and used bicarbonate dialysate with high flux dialysers. During follow up, one died of acute coronary syndrome at 18 months, two underwent renal transplantation after 24 months, one converted to full HD at 24 months (relatives more comfortable in- center) and one continues combination therapy (at 41 months currently). The signs and symptoms of inadequate dialysis and fluid overload improved in all patients by the 3rd month of initiating combination therapy.

Overall, the body weight, oedema, systolic blood pressure, symptoms of inadequate dialysis improved by 3 months in combination therapy. All 6 had maintained urine output, the average being 426.7ml in 24 hours before the combination therapy was started. 3 months after starting combination, the output declined to 353.3ml

and by 12 months had further declined to 283.33ml in 24 hours. The PD ultrafiltrate was around 600 ± 67.3 ml before combination therapy. 3 months and 12 months after combination, the PD ultrafiltrate was 575 ± 64 ml and 470 ± 79.6 ml indication a relative preservation of ultrafiltration The serum creatinine (1145mcmol/l Vs 660mcmol/l) and blood urea (17.5mmol/l Vs 9.1mmol/L) declined significantly by 3 months and sustained. The serum albumin (2.93gm/dl vs 3.53gm/dl) bicarbonate (19.12mmol/l vs 23.116mmol/l) and phosphorous levels (2.82mmol/l vs 1.43mmol/l) improved 3 months after combination therapy. Calcium levels remained near normal while the parathyroid hormone (PTH) levels tended to show sustained improvement after 3 months (94 ± 19.0 pmol/l vs 41.8 pmol/l). β_2 microglobulin levels did not show much of a change in combination therapy although in the one patient that converted to full HD thrice a week, the levels showed significant improvement (0.9mg/l- not shown here). Similarly, the hemoglobin levels also increased at 3 months and sustained (not indicated here as the factors responsible were multifactorial).

The dialysis adequacy was attempted to be shown numerically with the Casino and Lopez formula and it did show a significant improvement right away in all patients (1.64 ± 0.025 Vs 2.51 ± 0.096). Whether this translates to a better overall outcome on dialysis was not sought to be determined and there is scant data with respect to that, perhaps because this form of therapy is still not performed on a large scale.

Table 1- Demographic data

CHARACTERISTICS	NUMBERS
TOTAL NUMBER OF PATIENTS	6
MALE/FEMALE	4/2
NATIVE KIDNEY DISEASE	CGN-2, DN-4
PD DURATION	11.166
COMBINATION THERAPY DURATION	22.5
INDICATION FOR COMBINATION	A-4, A+FO-1, FO-1

CGN- chronic glomerulonephritis; DN- diabetic nephropathy; A-Adequacy; FO- fluid overload

Table 2- Clinical signs and symptoms

CHARACTERISTIC	0 MONTHS	3MONTHS	12 MONTHS
ANOREXIA	5	0	0
PERIPHERAL NEUROPATHY	3	0	0
RESTLESS LEGS	0	0	0
EDEMA	4	0	0

Combination Therapy- Clinical Details

Table 3- Biochemical changes

PARAMETER	0 M	3M	6M	12M
BUN(MMOL/L)	17.5 ± 2.76	9.1 ± 0.675	9.12 ± 0.68	9.0 ± 1.128
CREATININE(MCMOL/L)	1145 ± 164.667	660 ± 139.514	650 ± 128.6	665 ± 140.406
PHOSPHATE(MMOL/L)	2.82 ± 0.285	1.43 ± 0.183	1.56 ± 0.723	1.57 ± 0.179
CALCIUM(MMOL/L)	2.03 ± 0.105	2.445 ± 0.092	2.37 ± 0.796	2.46 ± 0.887
PTH(PMOL/L)	94 ± 10.97	41.83 ± 7.49	45.2 ± 8.89	34.33 ± 2.409
BICARBONATE(MMOL/L)	19.128 ± 0.551	23.116 ± 0.532	23.26 ± 0.638	23.5 ± 0.379
ALBUMIN(GM/DL)	2.93 ± 0.173	3.533 ± 0.047	3.462 ± 0.523	3.55 ± 0.11
β_2 MICROGLOBULIN(MG/L)	3.52 ± 0.577	3.42 ± 0.863	3.512 ± 0.922	3.44 ± 0.671
KT/V-PD	1.645 ± 0.025	1.625 ± 0.026	NA	1.59 ± 0.031
KT/V- TOTAL	1.645 ± 0.025	2.51 ± 0.096	NA	2.365 ± 0.116

Table 4- Comparison of clinical and biochemical parameters.

PARAMETER	0 MONTHS	3 MONTHS	p-value (0 Vs 3 months)/ 95% CI	12 MONTHS	P value (0 Vs 12 months)/95% CI
BUN	17.5 ± 2.76	9.1 ± 0.675	$<0.0001/-5.63$ to 12.43	9.0 ± 1.128	$<0.001/-8.4$ to 15.9
CREATININE	1145 ± 164.667	660 ± 139.514	$0.003/288.68$ to 681.31	665 ± 140.406	$0.003/283.15$ to 676.84
PHOSPHATE	2.82 ± 0.285	1.43 ± 0.183	$<0.001/1.08$ to 1.69	1.57 ± 0.179	$<0.001/0.94$ to 1.55
CALCIUM	2.03 ± 0.105	2.445 ± 0.092	$<0.001/-0.40$ to -0.39	2.46 ± 0.887	$<0.001/-0.5$ to -0.35
PTH	94 ± 10.97	41.83 ± 7.49	$<0.001/40.08$ to 64.25	34.33 ± 2.409	$<0.001/49.4$ to 69.85
BICARBONATE	19.128 ± 0.551	23.116 ± 0.532	$<0.0001/-4/68$ to -3.29	23.5 ± 0.379	$<0.0001/-4.9$ to -3.7

ALBUMIN	2.93± 0.173	3.533± 0.047	<0.001/ -0.76 to -0.43	3.55± 0.11	<0.001/-0.8 to -0.43
β ₂ MICROGLOBULIN	3.52± 0.577	3.42± 0.863	0.1/-0.84 to 1.04	3.44± 0.671	0.08/-0.72 to 0.82
KT/V-PD	1.645± 0.025	1.625± 0.026	0.2/-0.012 to 0.052	1.59± 0.031	0.007/0.018 to -0.091
KT/V- TOTAL	1.645± 0.025	2.51± 0.096	<0.001/-0.9 to -0.79	2.365± 0.116	<0.001/-0.8 to -0.6
WEIGHT(KG)	75.8±9.166	72.4± 3.84	0.421/ -5.63 to 12	72.05± 9.84	0.51/ -8.4 to 15
SBP(MMHG)	166± 10.121	140± 5.635	0.003/15.4 to 36.5	137.7± 4.56	0.001/18.64 to 38.2
URINE(ML)	426.7± 93.816	353.3± 60.23	0.137/-27 to 174	283.33± 60.23	0.01/41.4 to 244
UF-PD(ML)	600± 67.65	575± 64.56	0.58/-75.2 to 124	470± 79.69	0.022/222 to 237.2

IV. Discussion And Conclusion

The usual norm when PD therapy becomes inadequate for any reason is for the clinician to switch to HD. As stated earlier, combination therapy aims to maintain the advantages of PD, while providing an added benefit of HD in situations when the dose of PD cannot be increased. This case series demonstrates that combination therapy achieved both the stated objectives. Small solute clearance and evidence of fluid overload improved in all patients. There was indirect evidence for improvement in nutrition with rise in serum albumin and phosphorous. While the residual renal functions could not be preserved, the ultrafiltration of the PD remained over the entire period that each of the 6 patients continued PD, possibly due to a rest day permitting preservation of the peritoneal membrane function. Overall, the average duration of combination therapy was 22.5 months, with one of them continuing at 41 months, indicating that it may be possible to extend the integrity of the PD membrane with this form of treatment.

The cost of each dialysis with monthly investigations were averaged out and the following was found- the CAPD costs 1700 USD per month, the APD with 10-liter physioneal 2340 USD and APD with extraneal as last fill 3000USD. While HD cost 2600USD per month, the Combination therapy costs 3600. In our center, combination therapy being more expensive than conventional HD, there is a constant need to engage with the patient and the finance providers for approving this form of therapy. This explains the rather small numbers despite obvious benefits being demonstrated. It is imperative that the clinical benefits and side effects of combination and HD alone be assessed individually for each patient before a decision on further management is made⁷.

In conclusion, these case series demonstrated the feasibility of combining CAPD and HD in clinical situations with specific indications where it was not possible to achieve the adequate solute and water removal with standard PD prescription, and where it was found that increasing the dose of Pd was not feasible. It illustrated the maintenance of the advantages of PD (preserving RRF, flexibility of lifestyle, a more appropriate sodium and water removal) while prolonging the life of the peritoneal membrane, possibly by reducing exposure to glucose products. The studies by McIntyre, and those by Kawanishi et al from Japan illustrated two different options about combining the modalities, either early during dialysis or when the PD alone was not sufficient. While both options are feasible, they provide different types of benefits.

CASE 1

45-year-old Male, Diabetic nephropathy. Chose PD in the Pre- dialysis clinic, PD start Feb 2018

PET- HA-, APD- 10L, 1.36, 2.27, 1.5L, 6 hours, 5 cycles

March 2019- Extraneal added as last fill, 1L- due to inadequate solute removal and hypoalbuminemia

June 2019- cannot increase volume of both as patient refused- feeling bloated.

Offered 1 HD/week, 5 hours- accepted- till Feb 2021- transplanted.

PD alone- 15 months

Combination- 19 months

Indication- Decreased adequacy and inability to increase PD dos due to patient discomfort.

Table CASE 1- 1A

CHARACTERISTIC	BEFORE	3MO	6MO	12MO	18MO	24 MO	30MO
Anorexia, nausea	+	-	-	-	-		
Pruritis	+	-	-	-	-		
Oedema	-	-	-	-	-		
Painful neuropathy	+	+	-	-	-		
Restless legs	-	-	-	-	-		
Weight	75	72.5	72.1	72.5	72		

Urine output	650	450	380	350	200		
UF- PD	350	380	340	300	220		
HD pattern	1/wk						
SBP	160	136	132	140	132		

Table 2A

TRAIT	BEFORE	3MO	6MO	12MO	18MO	24MO	30MO
HB- Gm/dl	9.3	9.8	10.2	9.9	10.3		
UREA-mmol/l	20	9	8.8	9.6	9.2		
CREAT-mcmol/l	1300	850	800	810	810		
ALBUMIN- gm/dl	3.2	3.6	3.66	3.5	3.9		
BICARBONATE- mmol/l	19	23	23	22.5	23.2		
PHOSPH- mmol/l	2.2	1.6	1.2	1.26	1.3		
CALCIUM-mmol/l	1.9	2.32	2.4	2.31	2.2		
PTH-pgm/l-mg/l	85	58	49	32	41		
β_2 MICROGLOBULIN- mg/l	3.6	2.1	2.9	3.1	3.3		
KT/V- T	1.65	2.27		2.34			
Urine	0.35	0.37		0.29			
PD	1.3	1.16		1.34			
HD	0	0.79		0.782			

CASE 2

40-year-old Male, Diabetic nephropathy. Chose PD in the Pre- dialysis clinic, PD start Mar 2018PET- LA-, APD- 10L, 1.36, 2.27, 1.25L, 6 hours, 5 cyclesDec 2018- Extraneal added as last fill, 1L- due to inadequate solute removal and hypoalbuminemia, oedema+ Fill volume of others to 1.75L- refused CAPD,Not much improvement in solute clearance and oedemaJan 2019- cannot increase volume of both as patient refused- bloated feeling

Offered 1 HD/week- accepted- till Jan 2021- transplanted;PD alone- 09 months

Combination- 24 months

Indication- Decreased inadequacy + fluid overload and inability to increase PD dos due to patient discomfort.

Table 1B

CHARACTERISTIC	BEFORE	3MO	6MO	12MO	18MO	24 MO	30MO
Anorexia, nausea	+	-	-	-	-	-	
Pruritis	+	-	-	-	-	-	
Oedema	+	+	-	-	--	-	
Painful neuropathy	+	+	-	-	-	-	
Restless legs	-	-	-	-	-	-	
Weight	62.8	58.2	57.5	58	58.5	59	
Urine output	350	400	310	300	250	150	
UF- PD	550	580	550	500	480	400	
HD pattern	1/wk						
SBP	150	132	126	130	128	130	

Table 2B

TRAIT	BEFORE	3MO	6MO	12MO	18MO	24MO	30MO
HB- Gm/dl	10.1	11.2	10.2	9.98	10.3	10.2	
UREA-mmol/l	18	8.1	8.8	9.3	9.3	9.1	
CREAT-mcmol/l	1270	730	800	750	810	790	
ALBUMIN- gm/dl	3.1	3.5	3.5	3.8	3.9	3.92	
BICARBONATE- mmol/l	18.2	23.2	23.3	22.5	23.2	24	
PHOSPH- mmol/l	2.6	1.9	1.2	1.3	1.3	1.26	
CALCIUM-mmol/l	2	2.32	2.6	2.33	2.2	2.21	
PTH-pgm/l-mg/l	95	48	40	32	40	29	
β_2 MICROGLOBULIN- mg/l	4.6	2.2	2.1	3.0	3.2	3.12	
KT/V-T	1.67	2.55		2.38		2.43	
Urine	0.341	0.49		0.33		0.283	
PD	1.13	1.129		1.23		1.29	
HD	0	0.93		0.82		0.86	

CASE 3

36-year-old Male, CGN. Chose PD in the Pre- dialysis clinic, PD start April 2019

PET- LA-, APD- 10L, 1.36, 2.27, 1.5L, 6 hours, 5 cycles

March 2020- Extraneal added as last fill, 1L- due to inadequate solute removal.

June 2020- Increased APD to 2L- not much change in solute status, refused increase extraneal

Offered 1 HD/week- accepted- till Sept 2022- transplanted.

PD alone- 15 months

Combination- 15 months

Indication- Decreased adequacy and inability to increase PD dos due to patient discomfort.

Table 1C

CHARACTERISTIC	BEFORE	3MO	6MO	12MO	18MO	24 MO	30MO
Anorexia, nausea	-	-	-	-	-		
Pruritis	-	-	-	-	-		
Oedema	-	-	-	-	--		
Painful neuropathy	-	-	-	-	-		
Restless legs	-	-	-	-	-		
Weight	80	78	78.5	77.2	78.3		
Urine output	320	320	300	250	150		
UF- PD	610	600	620	600	620		
HD pattern	1/wk						
SBP	156	138	136	140	132		

Table 2C

TRAIT	BEFORE	3MO	6MO	12MO	18MO	24MO	30MO
HB- Gm/dl	9.9	10.5	11	11	10.3		
UREA-mmol/l	22	10.1	9.8	9.85	10.2		
CREAT-mcmol/l	1250	710	800	750	758		
ALBUMIN- gm/dl	2.9	3.1	3.34	3.5	3.56		
BICARBONATE- mmol/l	19	23	23.2	22.5	23.6		
PHOSPH- mmol/l	2	1.6	1.21	1.2	1.3		
CALCIUM-mmol/l	2.1	2.36	2.48	2.31	2.21		
PTH-pgm/l-mg/l	100	38	48	33	43		
β ₂ MICROGLOBULIN- mg/l	3.12	2.0	2.26	3.16	3.21		
Kt/V-T	1.68	2.56		2.55			
Urine	0.35	0.34		0.28			
PD	1.131	1.34		1.38			
HD	0	0.88		0.89			

CASE 4

65-year-old Female, Diabetic nephropathy. Chose PD in the Pre- dialysis clinic, PD start May 2019

PET- HA-, APD- 10L, 1.36, 2.27, 1.5L, 7 hours, 5 cycles

Dec 2019- Extraneal added as last fill, 1L- due to inadequate solute removal and hypoalbuminemia, breathing difficulty- right significant hydrothorax- not seen in the start- evaluation- PD fluid. Extraneal stopped, volume of APD 1000ml- refused pleurodesis.

Offered 1 HD/week- accepted- Continues to date.

PD alone- 7 months

Combination- 41 months

Indication- Decreased adequacy and inability to increase PD dos due to right hydrothorax.

Table 1D

CHARACTERISTIC	BEFORE	3MO	6MO	12MO	18MO	24 MO	41MO
Anorexia, nausea	+	-	-	+	-	-	-
Pruritis	-	-	-	-	-	-	-
Oedema	-	-	-	-	--	-	-
Painful neuropathy	+	+	+	+	-	-	-
Restless legs	-	-	-	-	-	-	-
Weight	72	71	72.2	73	71.5	72	72.5
Urine output	440	400	300	250	150	150	100
UF- PD	650	570	600	500	590	580	550
HD pattern	1/wk						
SBP	180	160	136	140	132	138	140

Table 2D

TRAIT	BEFORE	3MO	6MO	12MO	18MO	24MO	41MO
HB- Gm/dl	10.6	10.5	11	11	10.3	9.9	11.2
UREA-mmol/l	17	9.8	8.2	10	10.2	9.6	8.9
CREAT-mcmol/l	1150	660	700	680	720	650	610
ALBUMIN- gm/dl	2.8	3.12	3.36	3.5	3.56	3.6	3.8
BICARBONATE- mmol/l	19	23.2	23.8	22.5	23.9	24.3	24.1
PHOSPH- mmol/l	2.2	1.98	1.21	1.29	1.3	1.42	1.6
CALCIUM-mmol/l	2.22	2.36	2.41	2.36	2.21	2.2	2.5
PTH-pgm/l-mg/l	111	37	49	34	52	29.8	35
β_2 MICROGLOBULIN- mg/l	2.12	1.98	2.21	1.76	1.91	1.86	1.99
Kt/V-T	1.68	2.6		2.57		2.41	
Urine	0.48	0.40		0.37		0.27	
PD	1.2	1.29		1.3		1.27	
HD	0	0.91		0.90		0.87	

CASE 5

73-year-old Female, CGN. Chose PD in the Pre- dialysis clinic, PD start Nov 2019.

PET- LA-, CAPD- 3 bags, 8 hours, 1.36-2, 2.27-1, 1.5L- Increase to 2L in 3 months- refused 4 bags when suggested for fatigue, anorexia and nausea, acidosis, high Po4 and low albumin after 2 years, relatives found machine difficult, - LA status, June 2021

Offered 1 HD/week- accepted- death by MI Oct 2022

PD alone- 18 months.

Combination- 15 months

Indication- Decreased adequacy and unwillingness to change modality.

Table 1E

CHARACTERISTIC	BEFORE	3MO	6MO	12MO	18MO	24 MO	35MO
Anorexia, nausea	+	-	-	-	-	-	-
Pruritis	-	-	-	-	-	-	-
Oedema	+	+	-	-	--	-	-
Painful neuropathy	-	-	-	-	-	-	-
Restless legs	-	-	-	-	-	-	-
Weight	96	93	92.5	93.5	93.8	92	92.5
Urine output	400	400	300	350	150	180	100
UF- PD	700	700	650	490	500	480	520
HD pattern	1/wk						
SBP	180	170	136	140	140	138	140

Table 2E

TRAIT	BEFORE	3MO	6MO	12MO	18MO	24MO	35MO
HB- Gm/dl	8.8	10.1	11.2	10.6	10.3	9.9	11.2
UREA-mmol/l	16	9.6	8.2	9.1	10.2	9.6	8.7
CREAT-mcmol/l	1100	660	700	680	720	650	610
ALBUMIN- gm/dl	2.7	3.16	3.35	3.5	3.8	3.7	3.8
BICARBONATE- mmol/l	19	23	23.8	22.6	23.2	24.1	24
PHOSPH- mmol/l	2.6	1.86	1.22	1.39	1.31	1.41	1.63
CALCIUM-mmol/l	2.0	2.34	2.42	2.3	2.21	2.52	2.44
PTH-pgm/l-mg/l	101	37	49	40	52	39.8	35
β_2 MICROGLOBULIN- mg/l	1.98	1.6	2.0	1.88	1.91	1.87	1.76
Kt/V-T	1.62	2.54		2.41		2.39	
Urine	0.4	0.39		0.37		0.27	
PD	1.22	1.26		1.25		1.29	
HD	0	0.89		0.799		0.83	

CASE 6

80-year-old Male, DN. CAD with LVD and PAH; Chose PD in the Pre- dialysis clinic, PD start Feb 2020

PET- HA-, CAPD- 4 bags, 6 hours, 1.36-2, 2.27-1, 1.5L- Breathing difficulty and multiple admissions with pulmonary oedema (even before PD). APD tried- no change. PD suspended, HD 3/week, initially ok, then more breathlessness during longer gaps- 3 months; offered 2/week HD and APD- accepted- then 1/week, much better and no admissions with pulmonary oedema. Death arrhythmia- Nov 2021

PD alone- 3 months

Combination- 21 months

Indication- fluid overload uncontrolled with one modality

Table 1F

CHARACTERISTIC	BEFORE	3MO	6MO	12MO	18MO	21MO	35MO
Anorexia, nausea	+	-	-	-	-	-	-
Pruritis	-	-	-	-	-	-	-
Oedema	+	+	+	-	--	-	-
Painful neuropathy	-	-	-	-	-	-	-
Restless legs	-	-	-	-	-	-	-
Weight	69	62.5	61	61.3	60	61	-
Urine output	400	300	300	250	220	200	-
UF- PD	400	380	350	430	400	380	-
HD pattern	1/wk						
SBP	170	150	136	144	138	138	-

Table 2F

TRAIT	BEFORE	3MO	6MO	12MO	18MO	21MO	35MO
HB- Gm/dl	10	10.6	10.3	10.6	10.2	9.9	-
UREA-mmol/l	12	6.1	6.3	6.2	7.9	7.8	-
CREAT-mcmol/l	750	350	300	320	320	390	-
ALBUMIN- gm/dl	2.6	3.3	3.45	3.35	3.7	3.2	-
BICARBONATE- mmol/l	22	21	23.8	24	23.5	24.1	-
PHOSPH- mmol/l	2.1	1.46	1.52	1.39	1.59	1.41	-
CALCIUM-mmol/l	2.0	2.31	2.44	2.36	2.26	2.52	-
PTH-pgm/l-mg/l	72	33	50	32	52	29	-
β_2 MICROGLOBULIN- mg/l	1.62	1.43	2.0	1.12	1.71	1.55	-
Kt/V-T	1.73	2.57		2.53			
urine	0.39	0.29		0.24			
PD	1.34	1.37		1.4			
HD	0	0.91		0.89			

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