PERITONEAL REABSORPTION WITH THE PROLONGED PERITONEAL TEST FROM 4 TO 8 HOURS WITH GLUCOSE 1,36%, 2,27% AND 3,86%.

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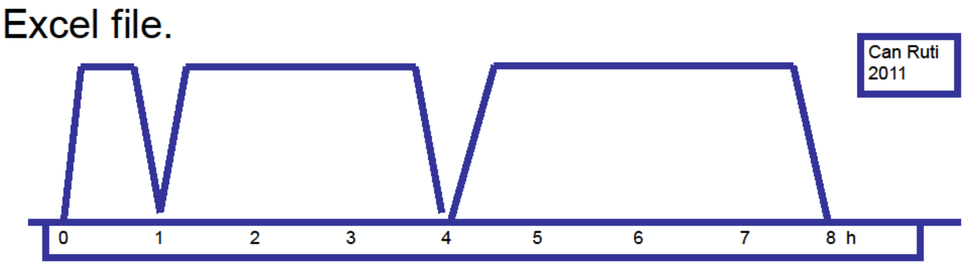
Introduction: The peritoneal ultrafiltration failure (UFF) in peritoneal dialysis (PD) has improved with the determination of the free water transport. However the overall peritoneal reabsorption does not have a standardized and easy method applicable in clinical practice.

Aim of the study: to calculate the peritoneal reabsorption (without distinction between the interstitial or lymphatic) from 4 to 8 hours in a prolonged peritoneal equilibration test (PPT) with 1,36, 2,27 and 3,86% glucose.

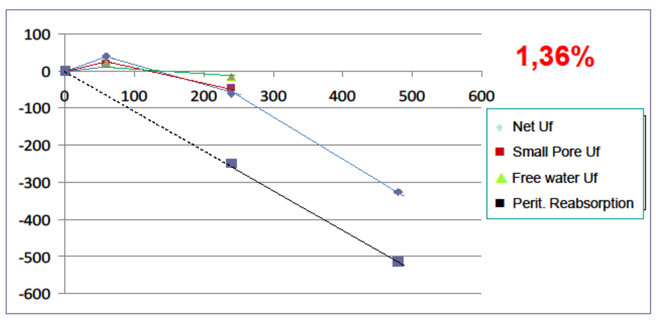
Methods:The prolonged peritoneal tests (1,36%, 2,27%, 3,86% glucose) were done in random order in a period less than one month. During the PPT the peritoneal volume was emptied and reinfused at 60' and 240' and finally voided at aproximately 480'. A blood sample at 240' and peritoneal samples at 0', 60', 120', 240' and 480' were withdrawn. Urea, creatinine, glucose, Na+, K+ were determined in all samples. B-2-microglobulin, albumin, total protein, IgA and IgG were analysed at 240'. Data were processed in an Excel file.

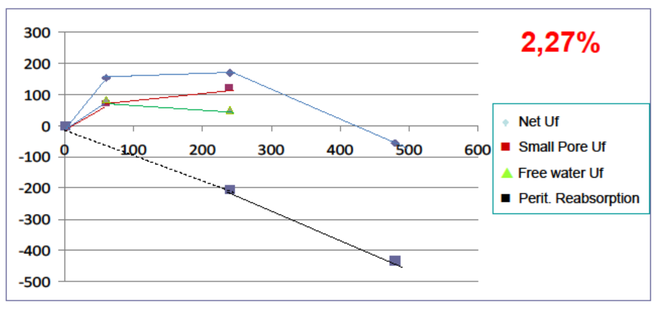


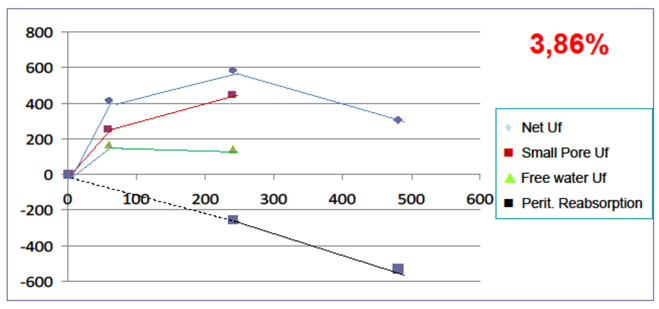
*The PD-Adequest was also calculated. Additionally a Personal Dialysis Capacities test was carried out.

Patients: 32 stable patients. Age 54.6±16.6 years; Male/female: 19/13, PD vintage: 20.44±18.02 months. ESRD: unknown 34%, GN 16%, Interstitial nephropathy 16%, Policystic Disease 6%, Vascular and nephroangiosclerosis 9%, diabetes mellitus 6%, other 16%. Charlson index 5.34 ±2.56. Modality: CAPD 18, APD 10, Incremental PD 4 patients.

Eligible patients 48; exclusions: 16: frail pt. 8, working pt. 4, distance 2, Family burden 1 and fear 1.







Water transport:
Significant differences (p<0.001) at 60' and 240' in all parameters except:

Reabsorption volume 4-8 h. (ml):
- 1,36%: 265 [95% C.I.: 214-316];
- 2,27%: 226 [95% C.I.: 159-292];
- 3,86%: 277 [95% C.I.: 220-292].

Reabsorption rate 4-8 h.(ml/min)
- 1,36%: 1.03 [95% C.I.: 0.83-1.24];
- 2,27%: 0.86 [95% C.I.: 0.60-1.11];
- 3,86%: 1.05 [95% C.I.: 0.77-1.33].

-Estimated Peritoneal Reabsorption with the night exchange:
→ Not significant differences.

The paired t-test between the peritoneal reabsorption volumes and rates of the different glucose concentrations were not significantly different. Their respective Spearman's correlation coefficients were good.

Water transport parameters/1,73 m² S.A.

	1,36 X (d.e.)	2,27 X (d.e.)	3,86 X (d.e.)	P=
Uf 60'	41.09 (156)	153.38 (108)	418.88 (163)	<0.001
SP Uf 60'	20.10 (153)	66.09 (95)	244.92 (130)	<0.001
FWT 60'	20.99 (34)	87.29 (60)	173.96 (77)	<0.001
Uf 240'	-61.38 (210)	169.88 (181)	586.34 (202)	<0.001
SP Uf 240'	-43.83 (189)	117.80 (134)	443.03 (170)	<0.001
FWT 240'	-17.55 (57)	52.08 (81)	143.32 (99)	<0.001
Uf 480'	-326.16 (281)	-55.78 (335)	308.94 (345)	<0.001
Reabs. 4-8 h.	264.78 (142)	225.53 (185)	277.41 (201)	Ns
Reabs. 4-8 h (ml(min)	1.03 (0.58)	0.86 (0.71)	1.05 (0.78)	Ns
Night Reabs.(ml/min)	0.75 (0.68)	0.59 (0.77)	0.55 (0.82)	Ns

Solute transport /1,73 m² S.A.

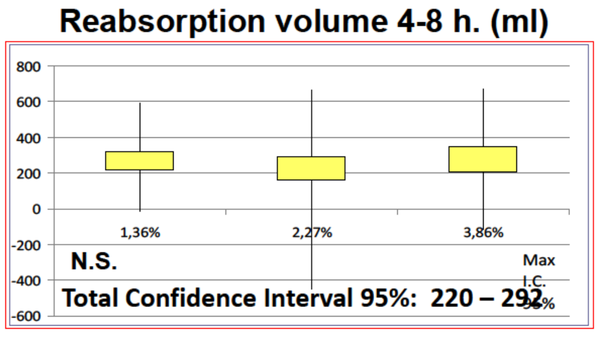
	1,36 X (d.e.)	2,27 X (d.e.)	3,86 X (d.e.)	P=
D/P Urea	0.83 (0.056)	0.84 (0.056)	0.85 (0.055)	Ns
D/P Creatinine	0.64 (0.11)	0.65 (0.11)	0.67 (0.11)	Ns
D/Do Glucose	0.45 (0.10)	0.37 (0.09)	0.29 (0.07)	0.001
MTC Urea	16.17 (3.56)	17.12 (4.06)	19.37 (4.58)	<0.01
MTC Creatinine	9.55 (3.87)	9.80 (3.49)	11.12 (4.27)	Ns
MTC Glucose	9.00 (2.75)	10.34 (3.00)	13.62 (3.41)	Ns
MTC Urate	8.07 (2.74)	8.20 (3.06)	9.24 (3.69)	Ns
MTC Phosphate	7.64 (2.56)	7.63 (3.01)	8.72 (3.53)	Ns
MTC K+	13.40 (3.26)	13.29 (3.20)	13.37 (3.38)	Ns
Cl β2-m	1.34 (0.54)	1.35 (0.42)	1.46 (0.64)	Ns
Cl Alb	0.11 (0.05)	0.10 (0.05)	0.10 (0.05)	Ns
Cl IgG	0.06 (0.03)	0.05 (0.03)	0.05 (0.03)	Ns
Cl IgA	0.04 (0.02)	0.03 (0.02)	0.04 (0.02)	Ns
R.C. s.s.	1.12 (0.14)	1.14 (0.10)	1.19 (0.13)	Ns
R.C. l.s.	2.42 (0.33)	2.57 (0.33)	2.57 (0.40)	Ns

(R.C: Restriction coefficient; s.s.: small solutes; l.s.: large solutes)

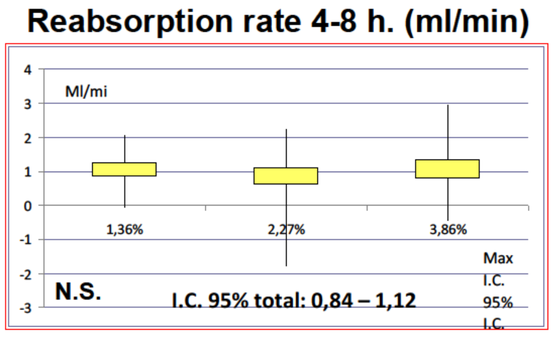
Comparison with PD-Adequest and PDC

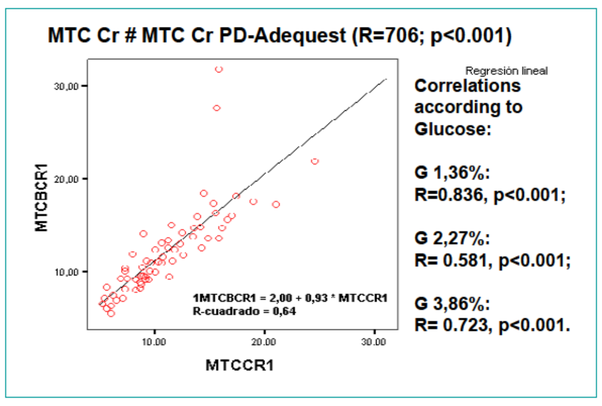
Differences	Correlations
PD-A:0.92 ± 0.79 (NS)	G-2,27%: r=0.337, p 0.059
PDC : 1.83 [1.70-1.95]	Weak corr.

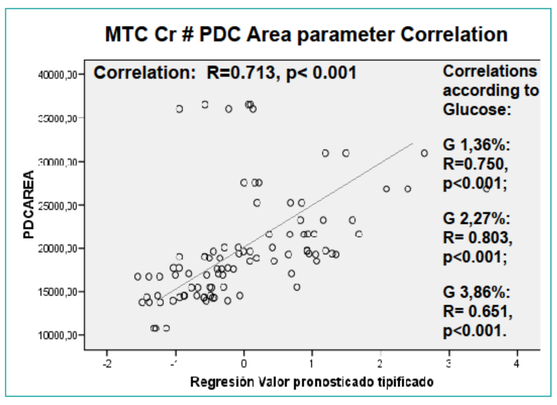
Reabsorption volume 4-8 h. (ml)



Reabsorption rate 4-8 h. (ml/min)







Conclusions:

1. The peritoneal reabsorption from 4 to 8 hours with different glucose concentrations is not different.

2.The Prolonged Peritoneal Test could be a practical method to standardize the peritoneal reabsorption rates.

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