Use of Ionic Dialysance to Estimate KT/V in Pediatric Patients on Chronic *on line* Hemodiafiltration

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OBJECTIVES

Compare urea Kt/V derived from ionic dialysance using three different volume urea distribution models (V) with the urea reduction method derived from the Dauguirdas formula (spKt/V).

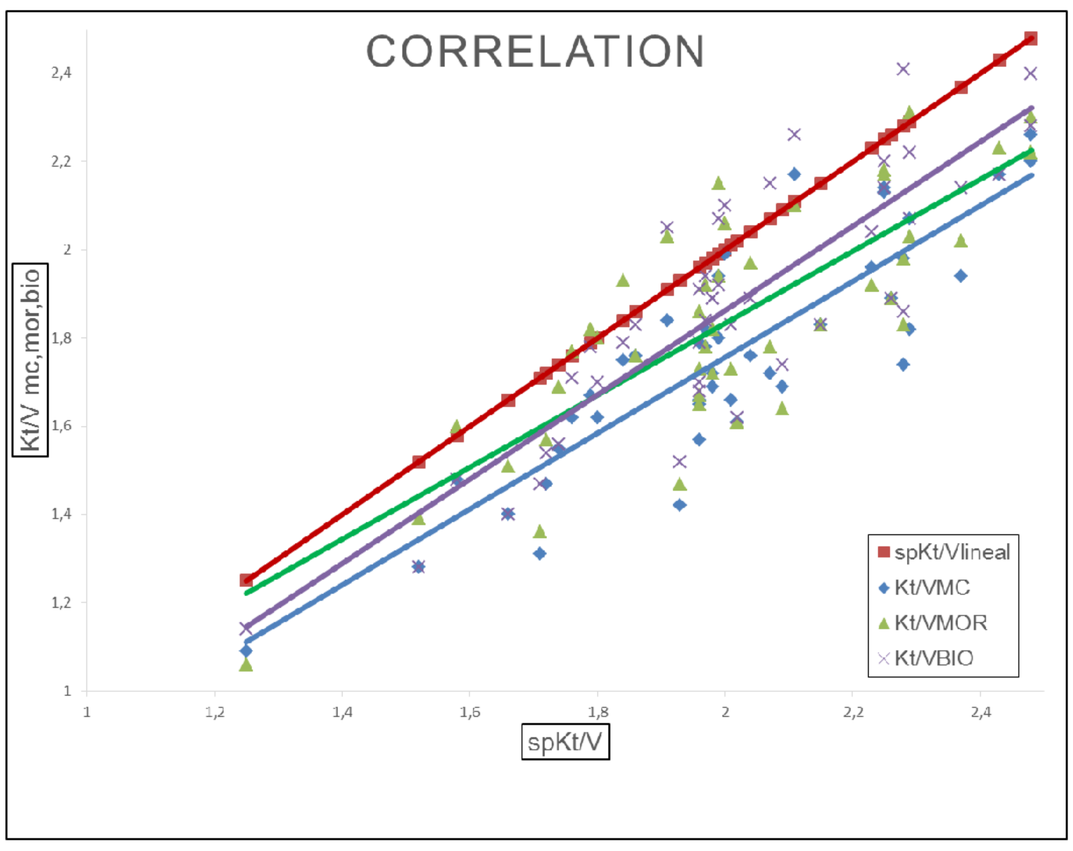
METHODS

Using a Fresenius 5008 CorDiax with Online Clearence Monitoring (OCM) system, we studied 44 hemodiafiltration (HDF) sessions and 176 Kt/V calculated results in 8 patients under 15 years. Kt on line was delivered by OCM and V was estimated using 3 methods: Mellits and Cheek (Vmc), KDOQI recommended total body water nomograms published by Morganstern (Vmor) and Bioimpedence (Vbio) using a Fresenius Body Composition Monitor (BCM®). We compared spKt/V and Kt/V in every session derived from these three methods. V derived from spKt/V (Kt/spKt/V) was compared with Vmc, Vmor and Vbio. Statistical analysis was by Pearson and Student T-test. SPSS programme version 21.0 was used

Table 1

Patient	Gender	Age (Years)	Dry Weight (kg)	Haemofilter	Vascular Access
1	M	4	14,7	FX40	CVC. 8F/18cm
2	F	6	16,2	FX40	CVC. 8F/18cm
3	M	10	24	FX50	CVC.10F/18cm
4	M	12	26	FX50	CVC.12,5F/24cm
5	M	12	32	FX50	AVF
6	F	12	30,5	FX50	AVF
7	F	15	33,2	FX50	AVF
8	M	10	24	FX50	AVF
Range		4-15	14,7-33,2		4CVC, 4AVF

Graph 1



RESULTS

Patient characteristics are in the Table 1.The Pearson correlation coefficient between spKt/V and Kt/V derived from every different V was 0,87, 0,81 and 0,86 for Kt/Vmc, Kt/Vmor and Kt/Vbio respectively (Graph 1).

	Mean	SD
spKt/V	2,0	0,26
Kt/Vmc	1,76	0,26
Kt/Vmor	1,84	0,26
Kt/Vbio	1,87	0,29

	Mean	SD
VspKt/V	13,1 L	3,0
Vmc	15,0 L	3,4
Vmor	14,4 L	3,2
Vbio	14,2 L	3,2

Paired Student T-test

Kt/Vmor v/s Kt/Vbio p. 0,098 and Vmor v/s Vbio p. 0,14

Kt/Vmc v/s Kt/Vbio p<0,001 and Vmc v/s Vbio p< 0,001

Kt/Vmc v/s Kt/Vmor p<0,001 and Vmc v/s Vmor p<0,001

Vmc was a markedly larger than estimated by V derived from spKt/V, resulting in a greater underestimation of spKt/V

CONCLUSIONS

On line Kt/V calculated by ionic dialysance is a useful method to estimate dialysis dose. Vbio and Vmor show the best calculated V to determine a reliable Kt/V in paediatric patients on chronic on-line HDF.

REFERENCES:

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2.- Body composition monitoring derived urea distribution volume allows for correct estimation of Kt/V in children on hemodialysis. Pediatric Nephrology (2012) 27:1605-1829

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