

INTEREST TO MEASURE KT V BY IONIC DIALYSANCE USING ONLINE CLEARANCE MONITORING FOR EVALUATION OF THE DIALYSIS DOSE

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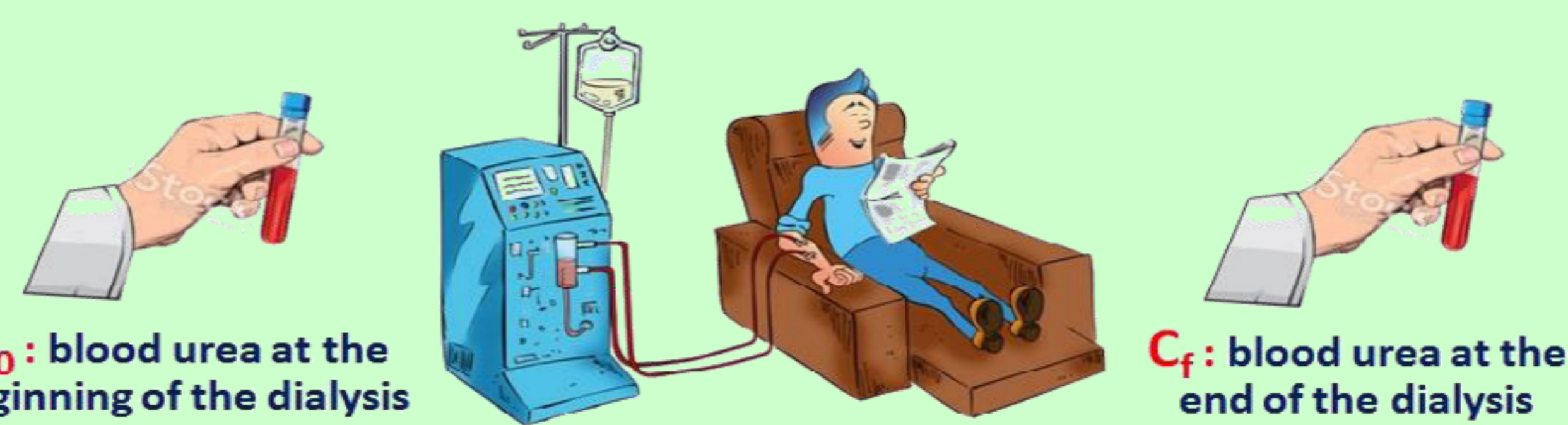
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INTRODUCTION AND AIMS

In practice, the dialysis dose is measured monthly in chronic hemodialysis patient either by blood samples to calculate Kt/Vsp and PRU, or by measuring the ionic dialysance in real time using Online Clearance Monitoring OCM® (Kt/V OCM). The aim of this work is to determine the interest in measuring the ionic dialysance in assessing dialysis dose.

METHODS

Prospective study of 2 months conducted in chronic hemodialysis patients for at least 6 months. 30 hemodialysis sessions were evaluated. During each session we practiced repeatedly and noninvasive measures of Kt/V OCM by ionic dialysance in real time using the OCM module (online clearing monitoring) integrated into the Fresenius 4008S generator and also we practiced blood samples urea at the beginning and the end of each session to calculate Kt/V sp (single pool) by the 2nd generation Daugirdas formula, and calculation of the percentage reduction of urea (PRU).



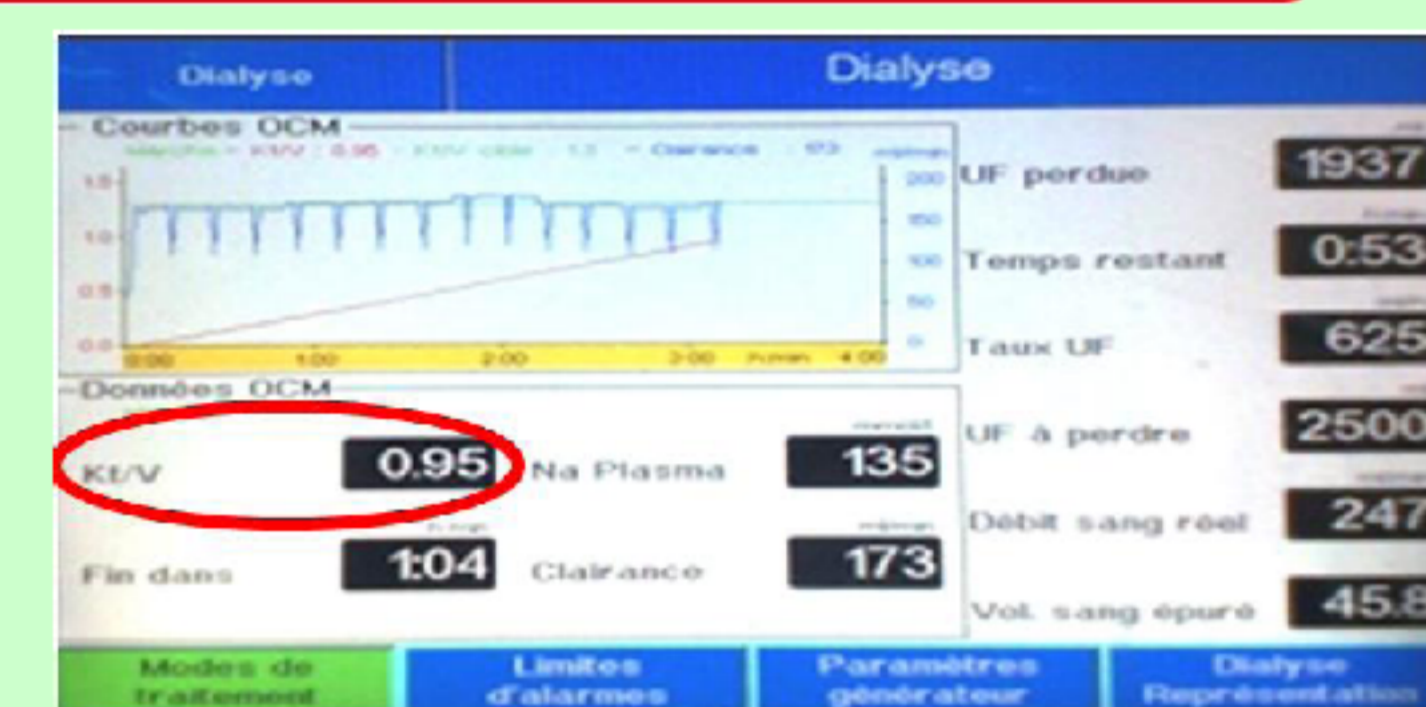
$$\text{Percentage Reduction of Urea (PRU)} = [(C_0 - C_f) / C_0] \times 100$$

The Daugirdas 2nd generation formula

$$\text{Kt/Vsp} = (-1) \times \log(C_0 / C_f - 0.03) + ((4 - (3.5 \times C_0 / C_f)) \times (\text{volume UF} / \text{poids}))$$



Measurement Kt/V OCM by ionic dialysance in real time with the OCM module integrated into generator Fresenius 4008S,



RESULTS

We have included in our work 30 chronic hemodialysis patients (sex ratio=1), the mean age was 60 ± 15 years. For a mean volume of urea distribution (Vurea) 33,75 ± 5,44 L, the mean of the Kt/V OCM, Kt/V sp and PRU was respectively 1,19 ± 0,2 ; 1,31 ± 0,26 and 66,4±7,2. We found a statistically significant positive correlation between Kt/V OCM and Kt/V sp (r = 0,89 ; p <0,001) the one hand and between Kt/V OCM and PRU (r = 0,84; p <0,001) on the other hand.

However, we found that 66,7% of patients had a Kt/V ≥ 1,2 when calculated from blood samples (Kt/V sp) against 46,7% when it was estimated by ionic dialysance (kt/V OCM). Indeed, ionic dialysance underestimates by 20% Kt/V sp. The finding of underestimation of the Kt/V OCM compared with Kt/V sp may be related to estimation methods (Vurea) real or calculated by the formula of Watson.

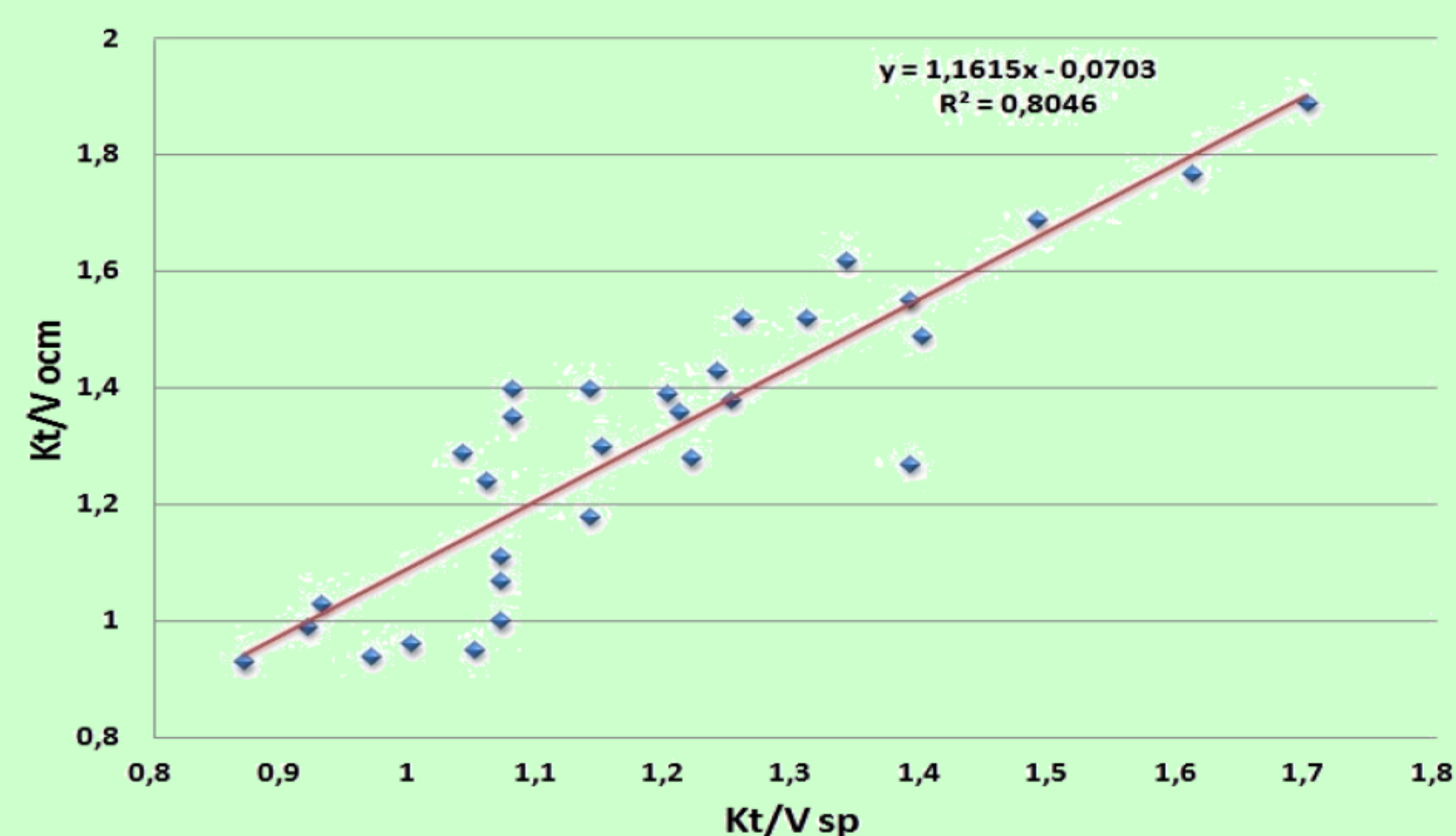


Figure 1 : Statistically significant positive correlation between Kt / VOcm and Kt / Vsp (r = 0,89 ; p <0,001)

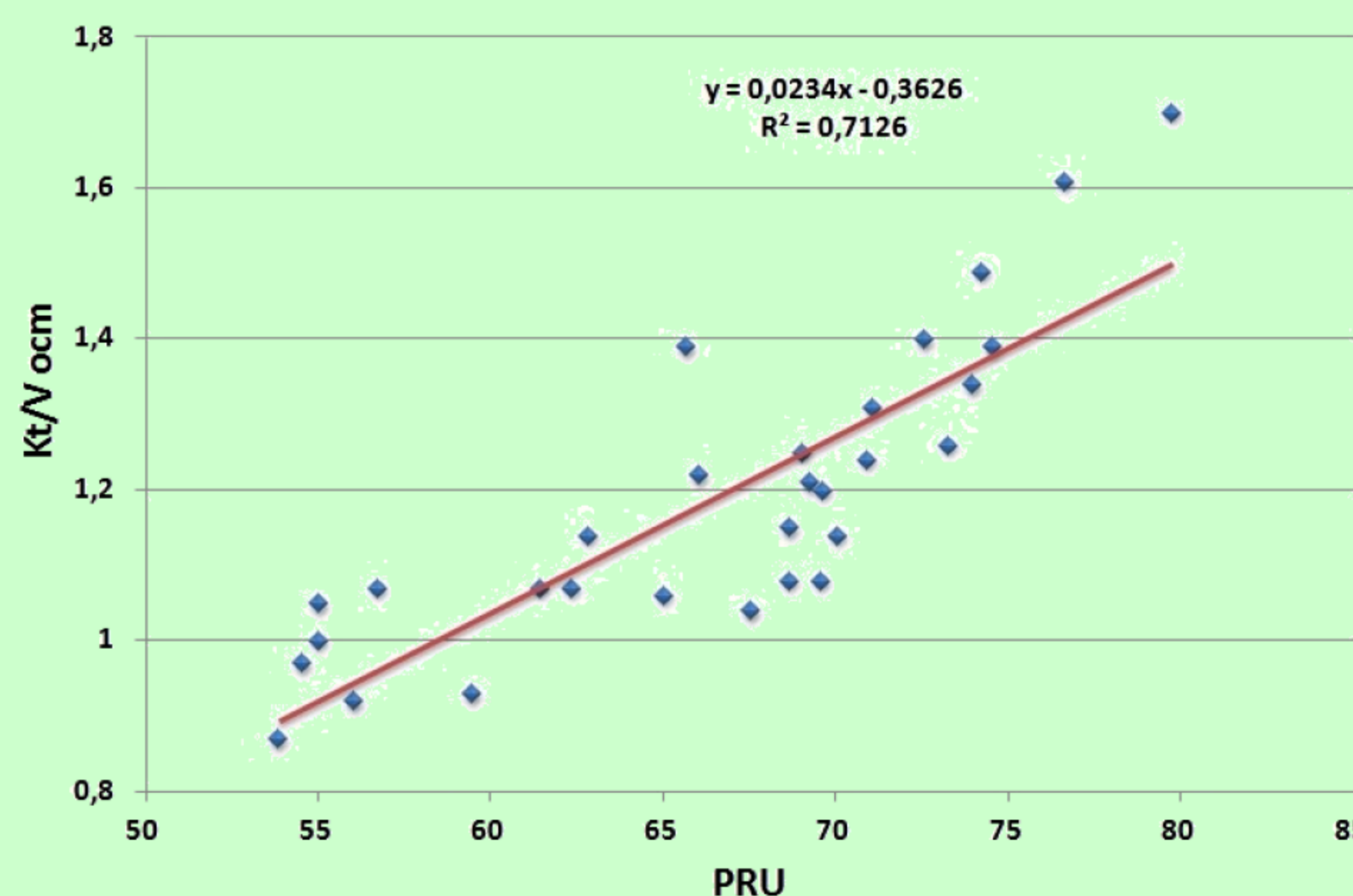


Figure 2 : statistically significant positive correlation between Kt/V ocm and PRU (r = 0.84; p <0.001)

		Kt/V ≥ 1,2
Kt/V sp	Calculated by the Daugirdas 2nd generation formula	66,7 %
Kt/V ocm	Measured by ionic dialysance (OCM)	46,7 %

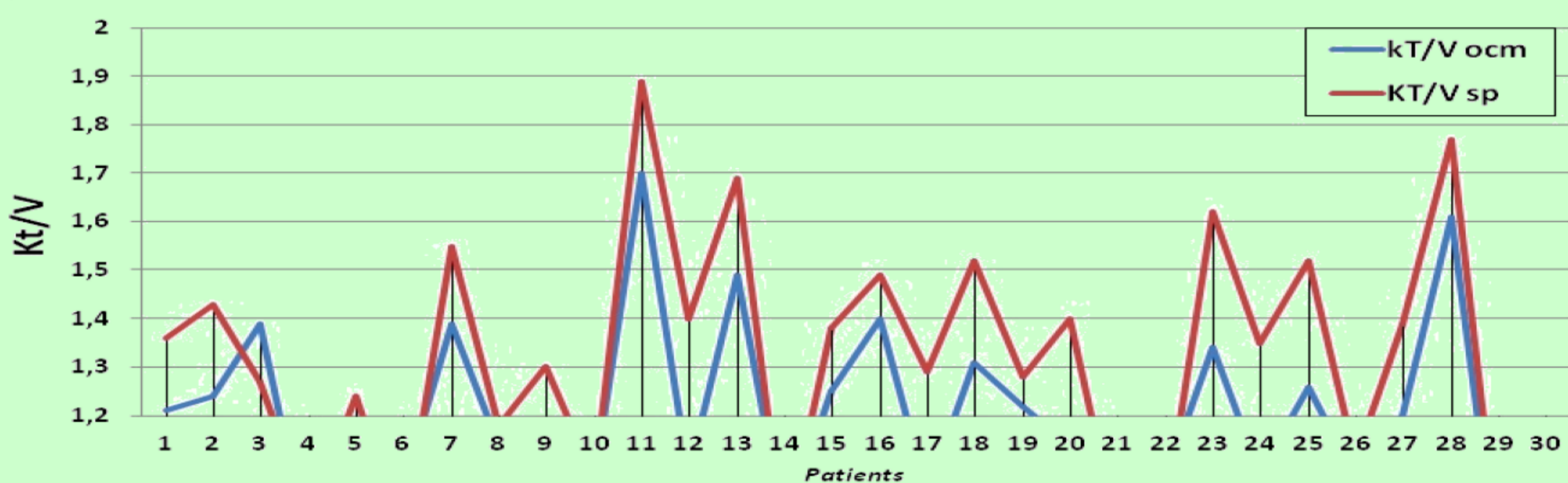


Figure 3: The ionic dialysance (Kt / VOcm) underestimates by 20% Kt / Vsp calculated by the method of Daugirdas

CONCLUSION

Hemodialysis generators equipped with a COM module are easy and quick to use, they allow for real-time measurement of the dialysis dose (Kt/V OCM) during the session without the need for blood sampling This measure is better validated with a good estimate of the volume of distribution of urea (Vurea). In the future, the dialysis dose (Kt) can be normalized by body surface area which prevents several reproached defects in Kt/V.

references

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